American
GAS JOURNAL
Formerly American Gas Light Journal
EST. 1859

VOL. 117, NO. 9
WHOLE NO. 3364

NEW YORK, SATURDAY, AUGUST 26, 1922

Subscription $3 per year
$4 Canada $5 Foreign

Library of Congress
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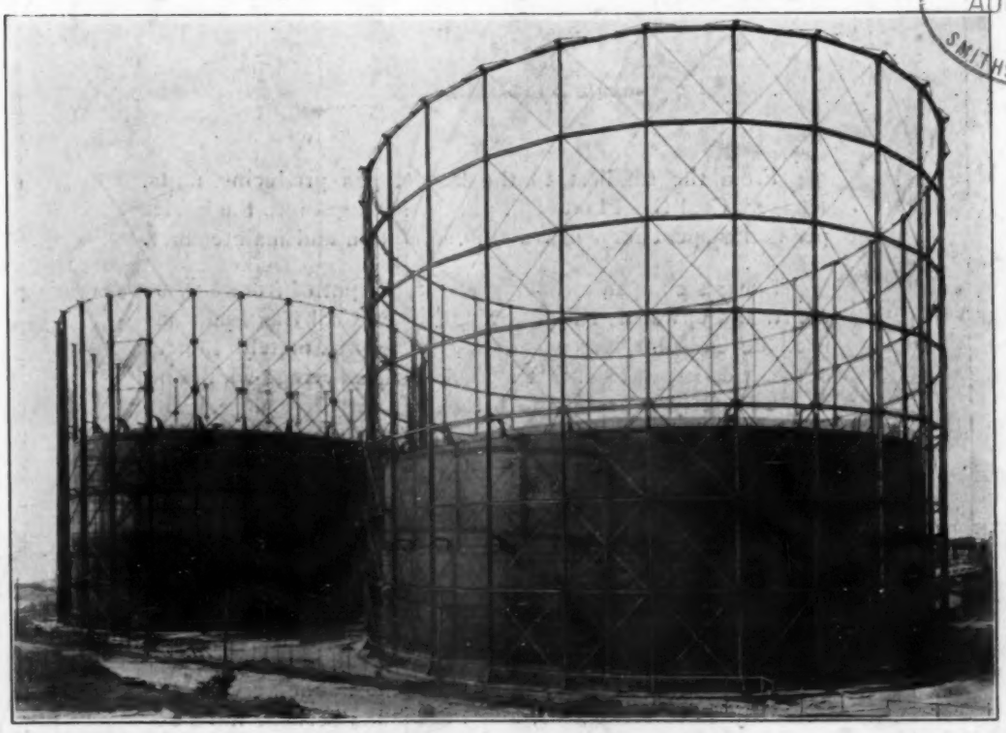

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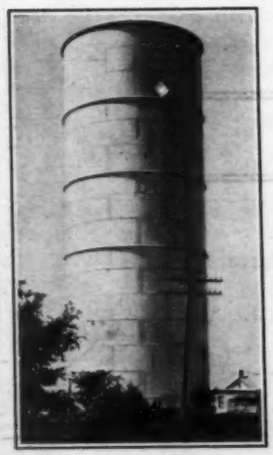

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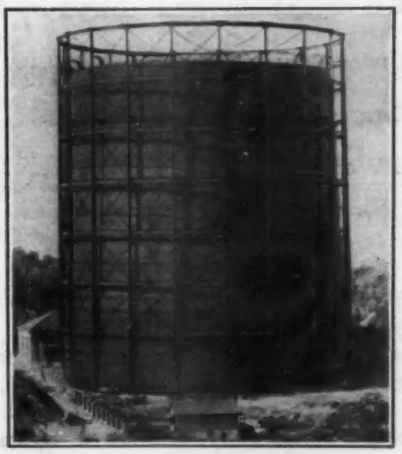

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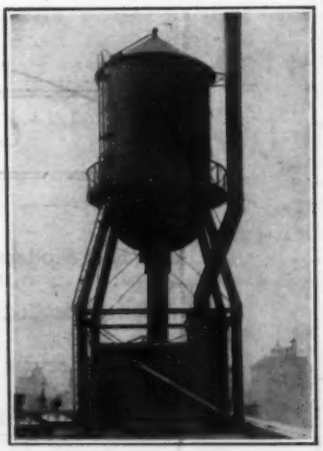

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American Gas Journal

SIXTY-THIRD YEAR

Published Weekly by American Gas Light Journal, Inc., 53 Park Place, New York, N. Y.

ELBERT P. CALLENDER, Pres. S. G. KRAKE, Vice-Pres.-Treas. A. M. GLEASON, Sec'y

WALTER A. FAIRSERVIS, Editor

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Subscription $3.00 per year, including postage, in the United States, Mexico, Cuba, Porto Rico, Hawaii or the Philippines; in Canada, $4.00; foreign, $5.00—Single Copies, 10 cents.

AMERICAN GAS JOURNAL. August 26, 1922. Vol. 117, No. 9. Published weekly by American Gas Light Journal, Inc., New York, N. Y. Entered as second-class matter Jan. 9, 1917, at the post-office at New York, N. Y., under the Act of March 3, 1879.

American Gas Journal

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Vol. 117, No. 9 NEW YORK, AUGUST 26, 1922 Whole No. 3364

Paris Has Modern Gas Equipment

Description of Operation in French Capital

By H. BLACKBURN HARTE, Special Foreign Correspondent of the "American Gas Journal"

Paris, France.—A city which, while it happens to own its gas works, is wise enough to see the perils of municipal ownership as it is practised in many other cities which own their own public utilities, and therefore does not attempt to operate it municipally, but instead has put the management and operation into the hands of a private company composed of men who are experts in the gas business—that is Paris.

As a result of this foresight on the part of the officials of the municipal government of the French capital the city has an extensive, modern gas service, remarkably efficiently managed, and making a fair profit for both the company which manages it and for the municipality. Because of the joint interest of both the city and the managing company in the success of the enterprise the adjustment of rates is made on an equable basis. The company has only to show that the service is being operated on a proper businesslike basis, and there can be no conflict with the city about such matters. Changes in the city administration and political motives cannot inspire the municipal officials to a rate fight with the gas company as an effective means of playing to the public gallery, since to force gas rates down to a point where there is no profit, as is attempted by politicians in many American cities, would be as detrimental to the municipality and its administration as it would to the gas company. Withal, the public of Paris is satisfied with the service and the rates it is getting under this cooperative arrangement between the municipal government and the gas operating company.

This description of the method of operating of the Paris company will, we believe, prove of real interest to "Journal" readers who will remember the first of Mr. Harte's series, from Belgium, published July 8. Mr. Harte tells many interesting things.—Editor.

Prior to May, 1807, the gas service of Paris was in the hands of the Compagnie Parisienne du Gaz, a private concern operating under a fifty-year franchise, whose charter stipulated that at the expiration of that time the gas properties should revert to the city. The history of this old company was similar to that of many other public utility companies operating under such franchises. Conflict and misunderstandings arose between the company and municipality because of the lack of co-operation, and consequently many efforts of the private management to give good service and make improvements were blocked. Fortunately, however, when the time for the expiration of this company's franchise approached, and the city of Paris was about to find itself with the management of a large metropolitan gas service on its hands, the municipal officials realized that they did not have the experience to operate such a business successfully, and that pure municipal operation such as exists in Brussels might spell disaster both for the gas service and the municipality. So no attempt was made to operate the gas works as a municipal enterprise. Instead, all rights to the "exploitation of gas in Paris" were turned over to an entirely new private company which was formed for the purpose, under a contract between the city and this new organization. While the city retained ownership of the properties and a certain amount of control in the affairs of the service, gas is supplied as by a private enterprise.

This new company is the Societe du Gaz de Paris, Societe Anonyme (limited company), organized in 1907 with a capital of 30,000,000 francs, which has since been increased in 1921 to 100,000,000 francs. The contract between the city and this company gives it the right of exploitation of the gas business in Paris for a period of fifty years from its inception, May 1, 1907.

This company or society was formed by M. Francis Rouland, Administrateur Delegue (delegated by the city to direct the gas service) and he has continued to manage the affairs of the gas service ever since. M. Rouland's position corresponds to that of general manager in an American company, and in addition he

is vice-chairman of the board of directors. M. Rouland has had many years' experience in the gas business, even prior to his taking the helm of the Paris company, and he is one of the best known men in gas circles on the Continent, both for his technical knowledge in matters of gas engineering, and for his ability as a business man and manager. He is an officer of many of the engineering research societies of the highest standing in Europe, and is recognized throughout the Continent as an eminent authority on technical subjects.

The Societe du Gaz de Paris is composed of engineers and business men, all of whom are absolutely divorced from political influences, and independent of the municipality. In this respect the Societe is identical with a purely privately owned company—its officials are not subject to the political hatchet in cases of change in the municipal administration or other political upheavals. Its officers are not political appointees, but are men who hold their positions because of their experience and knowledge of the gas industry, and their success in applying it. The Societe has several thousand stockholders who have a voice in its management, like any other corporation, and who share in its portion of the profits derived from the business.

Profits Depend on Successful Management

The Societe has a free rein in the management of the gas service. Its own profits depend on its successful management of the enterprise. The better the gas service is managed, the more profits accrue to the Societe and to the city. Consequently both the Societe and the city have an incentive to operate the service on a thoroughly efficient, businesslike basis. The city accomplishes its end in this by not interfering with the management. The Societe accomplishes its end by operating on the same principles that a purely private company would.

The Societe receives its remuneration on the following basis: First, it receives a sum sufficient to pay an annual interest of 6 per cent on its capital of 100,000,000 francs, which is divided into 400,000 capital shares of 250 francs each. In addition the Societe receives, after all expenses of operation have been deducted and stipulated reserve funds set aside, a share in the net profits of the business done, as follows:

15	%	on net profits under...	5,000,000 francs
12½	%	on net profits between 5,000,000 francs and 10,000,000 francs	
10	%	on net profits between 10,000,000 francs and 15,000,000 francs	
7½	%	on net profits between 15,000,000 francs and 20,000,000 francs	
5	%	on net profits exceed'g 20,000,000 francs	

The balance of the profits goes into the city treasury.

The city's voice in the affairs of the company lies

Fig. 1—Airplane View of the Largest of the Paris Gas Plants. A new plant is being built across the road, which will have a capacity of 1,000,000 cubic meters of gas per day and will be the largest plant in Europe. X indicates part of site of new plant.

in the Commission de Controle du Gaz. This commission is composed of members of the county council of the Prefecture of the Seine, in which the city of Paris and its environs lie, officials of the city administration, and officers of the Societe. This commission governs in matters of rate adjusting, expansion of service, labor problems, and so forth. The Societe's accounts are submitted twice a year to the Service de l'Eclairage (service of lighting), a city department with a staff of engineers who check them and then submit them with advices and recommendations to the Prefet de la Seine, who is practically equivalent to the mayor of an American city. The prefet and the county council have the right to intervene in the management should necessity arise. The ordinary expenses of operation are deducted from the total income in accounting the net profits, as would be the case with a strictly private company; but in cases where large expansions are needed, or new plants are to be erected, the Societe submits its plans and recommendations, showing the needs for such improvements, to the city administration. If the city approves the plans it makes an appropriation from the public funds for such works. This is a fair arrangement, since these properties actually belong to the city, and the city itself will benefit by any increased profits derived from the expansion.

While the Paris arrangement of a municipally owned system of gas properties being managed by a privately owned engineering company in the manner that a private company would manage its own properties may not appeal for general application to the American gas plant owner with our national point of view of opposition to municipal ownership in any form, still it must be conceded that the Paris plan is the most innocuous form of municipal ownership. It should at least be a rather disconcerting discovery for an advocate of public ownership to find that the third largest city in the world quails at the thought of taking upon itself the burden of municipal operation of its gas properties, and rather than take the chance of plunging itself into the disastrous possibilities of such an enterprise leases its properties to a private company for exploitation. This is especially impressive when it is considered that France is a country which has long experimented with many governmentally owned industrial enterprises, including certain of its railroads, other public utilities, manufacturing establishments, and even the tobacco industry which is still under Government control. While many of the French national and municipal industrial eterprises have failed utterly and been abandoned, there are others which are still being carried on to a much greater extent than is the case in America. At least the temperament and customs of the French people have been much more broken to governmentally conducted business enterprises than Americans have, yet, nevertheless, the municipal officials of Paris were unwilling to assume the responsibilities of operating a service such as the supplying of gas, with all of the knowledge of technical ramifications and business methods required to operate such a venture—knowledge with which municipal officials are seldom endowed. Surely this fact in itself is an acknowledgment of the superior results which can be expected from private enterprise.

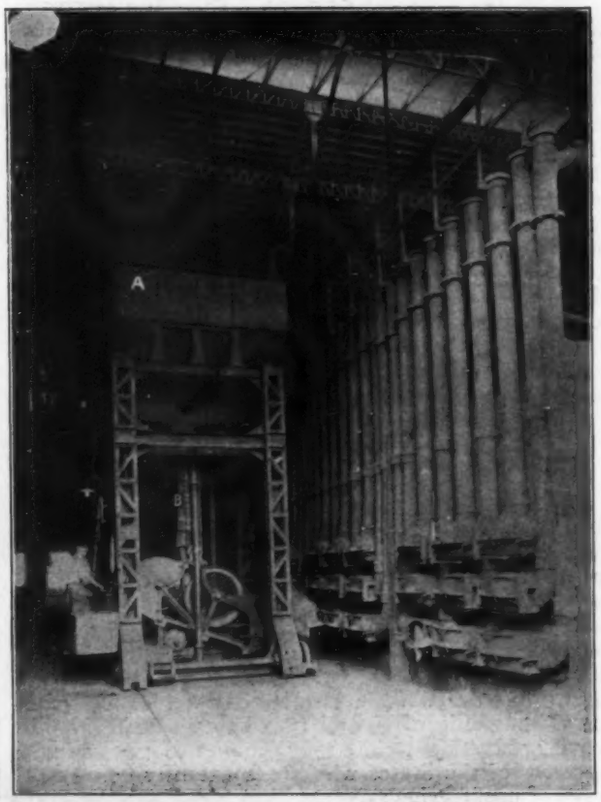


Fig. 2—Electric Charging Machine. Reservoir (A) holds charge of coal for entire battery. Operator moves charger in front of oven, sets regulator to allow charge sufficient for one oven to drop through pipe (B). Belt (E), in motion, precipitates coal through nozzle (C) into mouth of oven (D)

Paris Pays $3 per Thousand

While the present-day price of gas in Paris, which is 55 centimes per cubic meter, or the equivalent of a price of about $3 per thousand cubic feet in America, would stagger the average American consumer who complains about American gas prices, under present conditions in France it is not unreasonable, according to officials of the Societe du Gaz de Paris.

In an interview through an interpreter, M. Rouland explained why costs of gas production, and consequently the price to the consumer, in France are so much higher than in the United States.

"The chief item in our costs is coal," he said. "Twenty-six per cent of the coal we use comes from Great Britain. At the present unfavorable rate of exchange on the franc for the pound sterling, which ranges between 52 and 54 francs to the pound, as against a normal rate of 25, we are paying more than twice the price for a ton of coal that a Britisher has to pay. When it is considered that even the basic price is so much higher than it was before the war, and that we have to pay in addition heavy shipping, handling and transshipping charges, duties, etc., it can readily be seen how our costs have mounted. This British coal is our best gas coal. We get an-

other 48 per cent of our supply from the German Saar region, but the heavy taxes on this bring its cost nearly as high as the English coal, and it is not as good for gas making. We use 24 per cent of French coal, but it is not as good gas coal. The other 2 per cent of our coal comes from the United States, where again we have to pay on an unfavorable rate of exchange of about 12 francs to the dollar, as against a normal rate of 5. The high cost of transatlantic shipment and transshipment into the interior of France makes it impractical to use much American coal until prices come down and the rate of exchange becomes much more favorable. All other costs entering into the production of gas have risen to a startling degree. Labor costs have more than doubled. Construction costs for necessary extensions and improvements have mounted beyond reason."

Rate Is Among Lowest in Country

M. Rouland showed me a table of gas rates in the chief cities of France which would indicate that Paris has the cheapest gas in the country with but two exceptions, Brest and Strasbourg, both of which have a rate of 50 centimes per cubic meter. The reason these two cities are lower is that Brest is a seaport where the coal is delivered without the necessity of transshipment, while Strasbourg is located right in the heart of the Alsatian coal fields. Following is the table of French gas rates which should prove interesting to the much-maligned gas manufacturers of the States who are constantly being accused of profiteering:

	Centimes Per Cubic Meter
Paris	55
Amiens	70
Angouleme	79
Besancon	60
Bordeaux	65
Caen	80
Dunkerque	70
Le Havre	67
Lille	55
Marseilles (according to amount used)	60–75
Montpellier	70
Nantes	60
Rennes	65
Rouen	60
Toulon	70
Toulouse	62
Versailles	70
Brest	50
Strasbourg	50
Suburbs of Paris—51 plus tax of 4	55

Before the war and until the first of April, 1918, gas was sold in Paris for 20 centimes per cubic meter. In April, 1918, it was necessary to increase the price to 30 centimes for the first thirty-one cubic meters used, and 40 centimes for additional cubic meters. In Jan., 1921, further increase to the present price of 55 centimes was imperative. This is a fixed rate regardless of the amount used.

Under revisions in the contract between the city and the Societe made in 1921, rates will henceforth be readjusted annually, taking into consideration increases or decreases in coal, labor and other costs, on much the same plan that the Antwerp company is required to adjust its rates, as described in a recent issue of the AMERICAN GAS JOURNAL. M. Rouland hopes and expects that a reduction will be made possible for next year. The prices which the Societe is able to get for its by-products of coke, benzol and chemicals have a bearing on the fixing of the gas rates.

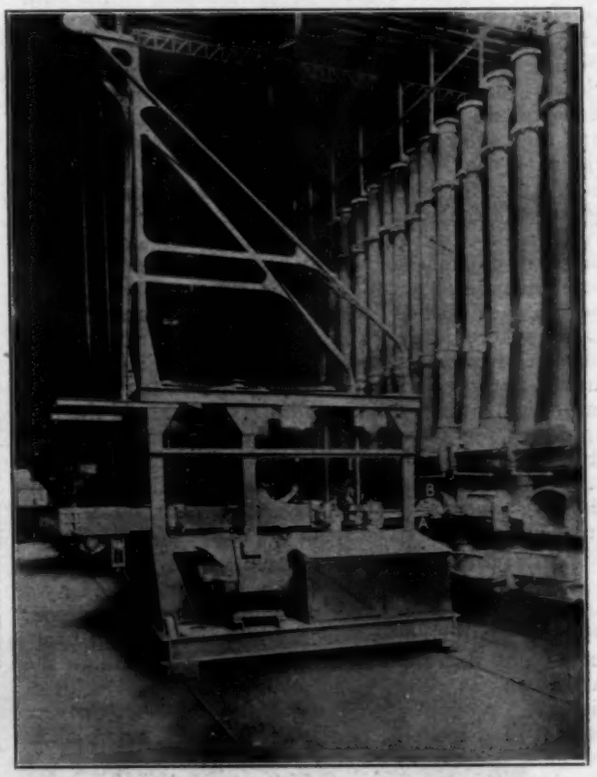


Fig. 3—Coke Discharging Machine. Plunger (A) with ram (B) on end is forced into oven and pushes coke through opening on other side, where it drops into water trough for quenching and conveyance by mechanical conveyor to railroad cars.

An idea of the extensiveness of the operations of the Societe can be gained from the fact that there are approximately 800,000 gas meters within the walls of Paris, a city of approximately 3,000,000 inhabitants. The company has seven gas-making plants, a by-products distillation plant, a large mechanical works, seven coke-selling depots, and fourteen shops scattered about the city to demonstrate gas apparatus to the public. It employs an average of 10,000 men in the plants and shops, and 3,000 additional employees in the offices and stores.

Labor Problems Solved

Labor problems have been very satisfactorily solved by the establishment of workmen's shop coun-

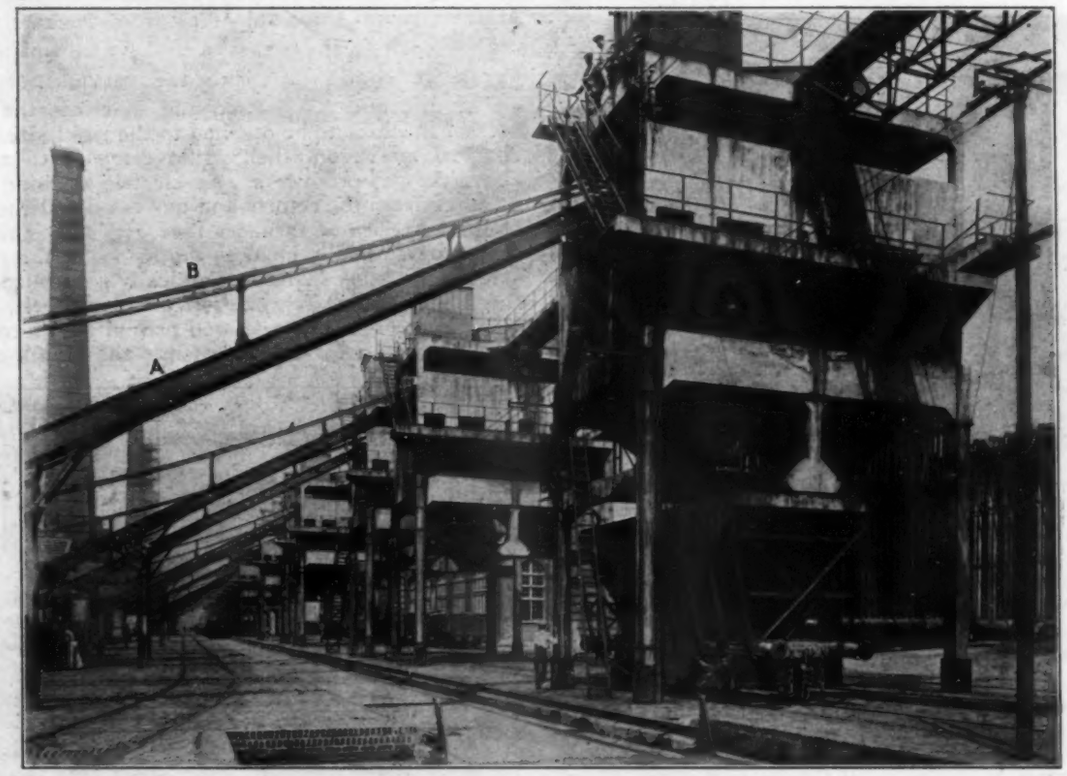
cils, similar to those existing in many American industrial organizations. Although the men belong to outside labor unions, and these unions in France are of two types, known as the "oranges" or moderate kind, and the "rouges" (reds) or radical kind with both of whom the Societe has to deal, the representatives of these men meet with representatives of the company in the shop councils, independently of their outside union affiliations, and great success in peaceful settling of wage questions and working conditions has been obtained through this medium. Final action on wage increases or reductions is left to the county council of the Prefecture of the Seine.

The Societe maintains a department known as the "Service de Vulgarisation," the object of which is to popularize the use of gas for cooking, heating, industrial purposes, and so on. While gas is now extensively used for cooking in Paris, it is not nearly so universal as in an American city, and there are still many kitchens equipped with coal stoves. The Service de Vulgarisation maintains fourteen magasins d'exposition (demonstration shops), where all types of gas apparatus is kept on display and its use demonstrated to the public. The Societe does not sell the apparatus; it merely attempts to popularize it so that people will buy it elsewhere. It is interested only in the selling of more gas through this medium, and not in the sale of the fixtures. Where customers do not want to buy, it will hire the apparatus out to them.

Maintain Cooking Schools

This idea is further carried out by the maintenance of two schools (courses de cuisine)—one to which ladies and their daughters come by special individual invitations sent out by the Societe, and another to which they may send their servants. High-class chefs demonstrate in these schools that any kind of food can be cooked or baked in any style on various types of gas ranges, ovens and other apparatus and, the proof of the pudding being in the eating, the women attending the school sample the dishes and pastries cooked before them—then decide they need to install such apparatus in their homes. Incidentally, many of them learn things about the proper preparation of food which their mothers never taught them. Many a French husband owes his domestic happiness largely to the efforts of the gas company. A whole cooking course is given, with lessons three times a week.

The Service de Vulgarisation is directed by a special engineer whose duty it is to find new ways of popularizing the use of gas, both for domestic and commercial use. This department is having great success in increasing home, restaurant and industrial installations. It helps to maintain good public relations, and the Societe reports that it has remarkably little dissatisfaction among its customers; there is not even much complaint expressed at the present



The coke is carried by mechanical belt conveyors (B) through chute (A) and is dumped automatically into loading car beneath

necessarily high rates. Since the increased rates went into effect there has been no diminution of consumption, but instead the average annual rate of increased use of 4 per cent, which existed before the raises went into effect, has been kept up to the present time. Newspaper advertising is used to some extent, chiefly for the sale of by-products.

Gas Used for Display

As in Belgium, gas is used very much for decorative and display effects in Paris. Some shop windows and advertising signs are gas equipped, though

Fig 5—Compressor Pumping Station

now most have been electrified. But all of the great public buildings of Paris are equipped with lines of open-flame burners along their roofs and cornices, the burners being spaced about one foot apart. On special occasions of celebration these are all lighted. We saw this for four nights while the celebration of France's great national fete, Bastille Day, the fourteenth of July, was in progress. It was a most beautiful sight, far more effective than rows of electric lights could be. Miles and miles of buildings, throughout the city, with their roofs apparently aflame as the breeze caused the thousands of little flames to flicker from yellow to blue and back again. Even the ancient historic buildings of Paris, such as the Louvre, are thus equipped. Burners are arranged in the shapes of coats of arms and other designs also, and very pretty effects produced. There is no fire danger because they are all stone buildings, the flames are up at the top, removed from all possible contact with anything inflammable, and a steady, even gas pressure is maintained.

I was taken through several of the largest gas-making plants by officials of the Societe and, having come from America, which we always think of as being the leader in increasing industrial efficiency and supplanting men with machinery, it was indeed a revelation to find that in the works here they had gone even further in this direction than in modern gas plants I have been through in the States.

Replacing Men with Machinery

The largest of the plants is the Usine du Landy (sce Fig. 1), located just outside the walls of Paris, where 750,000 cubic meters of coal gas and 150,000 cubic meters of water gas are produced each day when working at full capacity. It is an enormous works covering forty-two hectares or about 105 acres of ground. From the beginning of the process to the end, wherever it has been possible to eliminate men by the use of machinery it has been done. Coal is brought direct from the French and German mines by rail, and English coal is brought by barge via canals connecting with the Seine and Marne rivers. After unloading from the cars to the coal magazines, the fuel is taken by mechanical conveyors to chutes in which the various coals are mixed in proper proportion and shot into the compressor machine to be crushed to the right size. Mechanical conveyors then again carry it to retorts above the gas producers. An electric machine takes a charge from the retorts and moves on rails in front of the batteries of furnaces (see Fig. 2). This machine automatically charges the furnaces, the proper amount of charge being mechanically controlled. The charging is done by a swiftly-moving belt, upon which the coal is dropped, and precipitated forcefully through the air for a few feet into the mouth of the

Fig. 6—Station Connections and Governors

furnace. Similarly, the ovens are discharged by another electric machine (see Fig. 3) which forces a great steel bar like a battering ram into the mouth of the furnace and pushes the redhot coke out through the aperture on the other side into water-filled troughs, in which it is cooled and from which it is carried by mechanical conveyors up to chutes (see Fig. 4), through which it is loaded on cars to be sent away to the coke-selling depots.

The plant has all the most improved types of machinery which I have seen used in American gas plants, and many improvements which have not yet been adopted, at least in the American gas plants I have visited. The number of men has been reduced to a minimum, and there is very little manual labor. The duties of most of the men consist of watching the machinery and adjusting levers. Approximately 2,500 tons of coal per day are used. When the plant

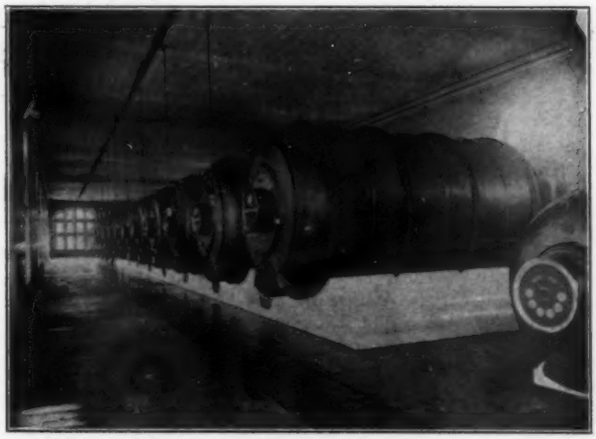


Fig. 7—Station Meters

is working full blast the total number of employees is 1,700.

Has Three Holders

There are three huge gas holders at this plant, each with a capacity of 150,000 cubic meters, which handle the larger portion of the gas manufactured. Numerous other smaller tanks take care of the balance.

Ever since the present Societe took over the gas service in 1907, even throughout the war, it has been carrying out a program of expansion and modernization. Work is now about to begin on a new gas plant, to be completed within five years, which will have a production of 1,000,000 cubic meters of gas per day, will supplant three smaller works and will be the largest gas plant in Europe.

Applying for Coal Under Priority Orders

Method to Be Used by Companies in Seeking Supply

The American Gas Association, working with organizations representing other branches of the public utility industry, has issued to the gas field directions for application for coal. Various suggested forms which will facilitate the handling of these applications have been sent to the members of the association.

Under the heading, "Procedure for Public Utilities to Provide for Essential Fuel Supply," directions signed by J. W. Lieb, chairman of the joint fuel committee, National Public Utility Associations, are included in the literature sent out. These directions are as follows:

"Under the direction of H. B. Spencer, the Federal Fuel Director, governmental agencies are rapidly being organized to cope with the present emergency situation. In view of this and of the priority orders which have been issued by the Interstate Commerce Commission, it is important that utility companies promptly take the necessary steps to insure the continuance of their fuel supplies as far as possible at reasonable prices. The best information that we have been able to obtain indicates that the following suggested procedure will best protect your interests.

"In general there will be two main classes of conditions which may confront you:

"I. You may have a contract with a coal company which has mines in operation.

"II. You may have no contract, or your contract may be with a company which is not producing coal.

"Your action under these different circumstances should be entirely different and each utility company should first determine into which division it falls. In either case, as a utility, you automatically belong in priority class No. 2 under Interstate Commerce Commission order No. 23, and your object should be to see that you are placed there and receive the advantage that is rightfully yours.

First Division—Contracts for Full Supply with Producing Mines

"If you are in the first of these two divisions (i. e., if you have a contract with a company now producing coal) communicate at once with your coal contractor:

"1. Call his attention to the fact that you are a utility and belong in priority class No. 2.

"2. Ask him to see to it that all bills of lading for coal consigned to you clearly indicate that the coal is for a public utility and is furnished under priority class No. 2.

"3. Request that he take vigorous steps to have his full share of cars allotted to him for handling your coal.

"Then if your coal company is unable to get adequate car allotment, or if your coal is seriously delayed by car congestion, or other railroad troubles, or if your coal is confiscated advise J. P. Jackson, national representative of the joint fuel committee of our utilities associations, 949 Munsey Building, giving full information including a copy of all important correspondence and papers in the case, a statement of the effort and action you, your coal contractor and the railroads have taken and a memorandum of your coal stock on hand, daily requirements and coal in transit. If you wire, mail supporting information as promptly as possible. Upon hearing from you prompt action will be taken by Mr. Jackson in Washington.

"If you have a contract under the above conditions, the question of price probably will not arise.

Second Division—Lack of Full Supply Contract with Producing Mines

"If you belong in the second division (i. e., if you have no contract or your contract is with a company not producing coal):

"1. Buy your coal at 'Hoover price' if possible and proceed as above.

"2. If you are unable to do this, file the following papers with your State Fuel Distributor, your State Fuel Distribution Committee, or your Public Service Commission, whichever has been appointed by your Governor to handle the distributon of fuel in your State:

"a. Form No. 50 (State Governor's application for coal) filled out in quadruplicate (four copies), leaving blank the date, application number, signature of chairman of committee and all blank spaces below the place for the chairman's signature.

"b. Affidavit that the statements made on form No. 50 as filled out are correct.

"c. Guarantee of payment.

"As soon as your priority request receives approval your State Fuel Administrator or State Fuel Committee will forward your papers to the Federal Fuel Distributor, Mr. Spencer, for final approval. They will then be forwarded to a district committee in a producing field, where orders will be placed to serve you, presumably at the 'Hoover fair price' then applicable to that district. Cars will also be allotted and you will come under class No. 2 priority, exactly as if you had a contract with a producing mine.

"When dealing with your State fuel authorities, deal direct with them. Once the State authorities have approved your request for priority and allotment they will themselves forward your papers to Washington. After your case gets into the hands of the national authorities, Mr. Jackson should be notified if you experience any difficulties and he will endeavor to 'follow up' your application.

"Furthermore, after you get your priority order approved, let Mr. Jackson know if you fail to get car allotment or if shipments are held up, confiscated or delayed for any reason.

Emergency Action

"If your condition becomes desperate, whether you have a contract or not, apply to your State fuel authorities for approval of a Class 1 priority application. Fill out form No. 50, together with affidavit and guarantee of payment and proceed exactly as outlined above under Division II, but in addition notify our Washington representative, Mr. Jackson, giving full particulars. Note—Class 1 priority will be granted only in cases of very great emergency, where shutdown would be serious to the public welfare.

Maintenance of Reasonable Price

"The Federal Fuel Distributor, Mr. Spencer, specifically requests that utilities avoid bidding against each other for coal and thus raise the price. Co-operation with the authorities both on matters of supply and price is essential. It will be appreciated, however, that our franchise obligations and those to our public require uninterrupted operation of our public services, and every company will, of course, spare no effort to insure continuity of its service."

How Gas Service Charge Helps Average User

Missouri Bureau of Public Utility Information Analyzes This Question for the Public

The Missouri Bureau of Public Utility Information, giving an excellent analysis of how the service charge actually works out, says:

"Few people understand what the gas service charge is. It is a special charge designed to cover cost of installing, repairing pipes between main on street and premises of customer, installing, replacing, reading and repairing meter and service pipes, keeping accounts, rendering bills, etc. The service charge is entirely independent of the amount of gas used and of the general operating and maintenance expense of the gas plant and business.

"When the gas company is not permitted to make a special charge for service, the service charge must be covered in the flat rate charged for the gas itself. That makes the total gas bill more than it should be and compels the 'average customer' to pay more than his or her just share of the cost of gas and of the cost and service, and lets the average customer who uses from 0 to 400 ft. of gas get away without paying his or her just share of the cost of service.

"The loss caused the company in serving the 'subaverage' customers must be paid by the average customer.

How Service Charge Operates

"The principal point made by the gas companies for the service charge is:

"By compelling every customer to pay for separate charges for service, the service charge will reduce gas bills of the average workingman, clerk, householder, etc., and enable the gas company to sell gas at a less rate per thousand feet, which will help the gas company by popularizing gas and by enabling it to sell much greater quantity of gas itself.

"The companies specifically state that they do not expect to increase their total revenues through the gas service charge.

"No matter what the form of rate may be, the gas company must collect a certain sum each month to cover costs of operation, etc. The interest of the gas company in the service charge is only to see that every customer gets a square deal and that he or she pays only for what he or she gets, every customer to pay his or her share, no less and no more.

"In the end, service charge or no service charge, the gas company must, perforce, collect practically the same amount of money as it will collect with the service charge in force. So the gas companies are not interested in the service charge as an additional source of revenue.

"They say that they want to relieve themselves and their 'average customers' of the loss caused by carrying the 'subaverage customer' to allocate charges in a fairer manner, to make the man who demands gas service and who does not use enough gas to cover the cost of that service pay his just share of that service.

"How can these apparently opposed interests be reconciled?

"In this way: The gas companies, presumably, make some money on the average customer, clerk, workingman, salesman, who uses from 1,600 to 2,600 ft. of gas a month, because there is sufficient return in the amount of gas sold to prevent any loss to the companies for service rendered in installations, meter reading, repairs, bookkeeping, etc.

"But the gas companies lose money on from 10 to 20 per cent of their customers, mostly the well-to-do, who use gas installations only as conveniences to be used occasionally instead of coal or electricity, or only now and then in stores, offices, or in high-rent apartments where the family of two or three dine out frequently, etc., and who do not use enough gas to pay the company for expenses caused by laying pipes, installing meters, keeping accounts, etc.

"The well-to-do dwellers in high-rent apartments, or in fine mansions where coal or steam is used to cook and heat, the man who insists upon having gas in his office for use when he wishes extra heat, to cook coffee, etc., are the customers upon whom the gas company loses money.

Cost of Gas Service

"The gas companies figure that it costs them about 75 cents a month to carry each customer on their books, irrespective of amount of gas used. He may not use any gas at all or he may use 10,000 ft.; the cost of carrying him is the same.

"When a dweller in a high-rent apartment or in an office uses only 400 ft. of gas at a total bill of, say, 60 cents, that customer's monthly bill falls short of serving him by 15 cents. The company loses 15 cents in service and 60 cents' worth of gas, a total of 75 cents a month, in serving such a customer.

"This loss must be made up by other customers. The gas company cannot continue to operate at a loss.

"The loss on the high-rent apartment which uses 400 ft. of gas a month is made up by the customers in cottages, moderate-priced flats, houses, etc., whose gas bills average from 1,600 to 3,000 ft. of gas a month.

"It will be noted that the service charge always results in a reduction of the bills of the average consumer, and that the higher the service charge, the lower the total gas bills.

"How is that apparent miracle brought about?

"Simply by making the well-to-do who use gas merely as a convenience pay their just share of the service charges incurred by the gas company in serving them.

"It costs the gas company just as much to install and repair pipes, install, read and repair meters, collect bills, etc., for the family who uses no gas at all but which has gas on tap, as it does to serve the family which uses from 1,600 ft. of gas upwards each month."

Some Objections to Gas

The following were some of the arguments, printed in a New England paper in 1816 against gas illumination of city streets. They represent the best and most serious thought at that time:

1. A theological objection. Artificial illumination is an attempt to interfere with the divine plan of the world which had preordained that it should be dark during night-time.

2. A medical objection. Emanations of illuminating gas are injurious. Lighted streets will incline people to remain late out of doors, thus leading to increase of ailments by colds.

3. A moral objection. The fear of darkness will vanish and drunkenness and depravity increase.

4. Police objection. Horses will be frightened and thieves emboldened.

5. Objection from the people. If streets are illuminated every night, such constant illumination will rob festive occasions of their charm.

Directors Named in Towns Served by Gas Companies

Napoleon, Ohio.—The Ohio Gas, Light & Coke Company has adopted the consumer-ownership plan to make every gas and electricity user a part of the organization. This plan has been very beneficial both for the consumer and the company in other towns where it is in successful operation.

To keep in closer touch and harmony with each town supplied with gas and electricity, the company added the following men to the board of directors:

Delta, Ohio—J. M. Longnecker, president, People's Savings Bank.

Wauseon, Ohio—F. J. Spencer, vice-president, First National Bank.

Archbold, Ohio—Dr. C. E. Murbach, director, Farmers & Merchants Bank.

Bryan, Ohio—A. R. Dewees, president, the Union Savings Bank; A. L. Gebhart, attorney.

Montpelier, Ohio—J. D. Hill, president, Montpelier National Bank.

Stryker, Ohio—F. N. Bruns, cashier, State Exchange Bank.

This will make a total of eight bankers on the board of directors and will enable each town to have its own voice in the management and future policy of the company.

Stirring Times in Monroe Gas Territory

Rumor, substantiated by undeniable indications in the financial and operating circles, has it that within the next few weeks the announcement will be made of the completion of a deal involving the expenditure of more than $1,000,000, whereby the oil and gas interests of one of the most important companies of the Monroe gas belt will pass into the control of Eastern manufacturers already interested in the development of this field, and having large holdings there. While these rumors have been rife for some time and although everything seems to point to their being well founded, the absence of official representatives of both the companies involved in the deal, makes it impossible to verify them.

The sale of many thousand acres of gas lands, wells and other holdings and property in Monroe to the Eastern company, which has headquarters in New York, means, if the deal has been consummated, that Eastern capital will be invested in the Monroe gas field more heavily than ever before.

Largest Gas Main in World Is Laid

Peoples Gas Company of Chicago Provides Additional Capacity

With the completion of the big plant at Thirty-fifth Street and the Drainage Canal, Chicago, the Peoples Gas Light & Coke Company found that its distribution system on the south side of the city needed revision. The increased volume of gas coming from the new plant taxed the present system to the maximum capacity.

Provision had been made for this work when the plant was being constructed. A 48-in. main had been laid south from the 10,000,000 cu. ft. holder at Crawford Avenue and Thirty-fifth Street and carried under the Chicago Drainage Canal, Illinois and Michigan Canal and the Santa Fe and C. & A. R. R. by means of a concrete tunnel 1,700 ft. long. This 48-in. main comes to the surface in the 9-ft. south tunnel shaft at Thirty-ninth Street and Crawford Avenue, and was completed in the spring of 1921.

Caterpillar Crane Placing Forty-eight-inch Pipe Weighing Four Tons

Increased consumption and the successful operation of the coke-oven and water-gas plants at the by-products plant made it imperative that the 48-in. main be laid as soon as working conditions would permit. This main will extend four and one-half miles along Hamlin Avenue, from Thirty-ninth Street to Seventy-first Street.

It will serve three purposes: take care of the maximum capacity of the new plant; act as a storage holder, and take care of the needs of the future to supply the south and southwest sides of Chicago for a number of years to come.

Capacity of the Big Main

At Thirty-ninth Street a 36-inch main feeds east to Rockwell Street; again at Fifty-seventh Street a 20-in. main feeds east to State Street, and again at Seventy-first Street, where the 48-in. main ends, a 24-in. main runs east to Robey Street. With a 3-lb. drop in pressure on the 48-in. main between the pumping station at the holder at Thirty-fifth Street and Crawford Avenue, and with the different lines feeding east out of the 48-in. main, the new main will pass a maximum of 3,000,000 cu. ft. per hour. The pressure maintained at the pumping station is from 6 to 6½ lb. With a 1-lb. drop in pressure between the pumping station and Seventy-first Street, a distance of nearly five miles, the 48-in. main will pass approximately 1,500,000 cu. ft. per hour.

Largest Caterpillar Ditching Machine in the World Boring the Big Trench

Preliminary Work Important

The grade of the southwest side of Chicago rolls gently to the north and all drainage flows to the Drainage Canal. It was decided that an easy grade be given the 48-in. main to the north and that it follow the natural contour of the ground. Two feet of cover was considered sufficient, and by grading the line to the north no drips would be necessary, as the line would drain into the tunnel shaft at Thirty-ninth Street.

All underground work was taken care of in advance, arrangements being made with the city waterworks department to lower their mains deep enough to allow the 48-in. main to pass over them. Telephone conduits and high-voltage wires were moved out of the path.

An accurate survey was made of Hamlin Avenue

(*Continued on page* 188.)

As the Journal Views It

Unprecedented Demand Forecast for Winter

The demand for gas that was bound to follow the coal strike is beginning to be felt in various sections of the country and indications are that the capacities of many plants are going to be taxed to the utmost during the winter months. This question presents many phases and gasmen generally are deeply concerned.

There can be no doubt but that the coal shortage is going to continue for many months to come and may last right through the winter. This means that any prolonged spell of extreme coldness is going to add to the ordinary troubles that confront operation under usual conditions. Any failure to provide full service is going to receive condemnation from that part of the populace that is always to be heard from.

From reports that are being received almost daily, it is apparent that every company is making every effort possible to arrange to care for the coming demand. And except as the shortage of coal will affect operations we believe that the future months will see the gas industry rise to unprecedented conditions.

There is a side to the question, however, that is bound to give trouble unless the matter is taken in hand at once. Many people who have been unable to secure their regular supply of coal are going to purchase inferior gas-consuming appliances and these will be hooked to the distribution lines. Experience has taught us of the trouble that these appliances can cause and we hope that every company will warn its consumers and prospective consumers of the dangers of using any equipment that is not passed upon by the company. This does not mean that the company will sell all of the appliances that will be connected up, but it does mean that a lot of complaint work will be eliminated. It is worth giving considerable thought to.

There is a bright side to the matter and from it gasmen will derive as much comfort as they can. That is there are many people who will learn the value of gas who are absolutely ignorant at present of its many advantages. We look for a tremendous increase in the number of consumers as well as in the amount of gas used.

It would be well for any gas company to carry on campaigns right now explaining that it will do its best to care for the demand that is sure to come but at the same time asking that consumers in their turn do their part.

While the situation holds much that will cause worry, at the same time, it is filled with great possibilities for building good-will.

Gas Service in Paris

We wonder how the residents of an American city the size of Paris, France, would feel about paying a rate of approximately $3 per thousand for gas. Yet Mr. Harte, who has been spending several weeks in the French metropolis, reports that his investigations disclose the fact that the Parisians apparently are satisfied that the rate cannot be made lower. American politicians would, we believe, find something sinister if such a rate was enforced in the United States.

Mr. Harte's article is particularly timely, for it comes when there is an agitation beginning to reduce rates even in the face of a coal shortage that has already advanced the price of this necessary raw material and with more increases expected. Also it serves to disprove statements that have been made recently by a powerful newspaper that gas rates generally in the United States are the highest in the world. We hope that our readers will point out to their customers and the newspapers the situation as described by Mr. Harte.

The method of operation of the Paris company is not unfamiliar to American operators, for this system is in effect in some cities in the United States. Whether the conditions that exist in Paris are typical of France Mr. Harte does not state, but it can be gathered that rates in all cities that have gas service are high as compared to the United States. Mr. Harte also did not state what form regulation takes in France, but it can be gathered that it must be entirely a municipal question, as the gas property is owned by the city. But withal Mr. Harte has furnished to the readers of the AMERICAN GAS JOURNAL a picture of French operation that has a distinct value.

On the Job

America's public utilities are managed by as brainy a set of men as ever lived. They have to be to hold their jobs. It is their duty to provide for the present and look into and plan for the future, years ahead. If they ever suddenly and unanimously decided that the country had reached its utmost in development and ceased planning for the future, an economic calamity would descend upon every man, woman and child in the country before it was even anticipated.

Some months ago there was every sign that there would be trouble in the mining world. There seemed to be a chance that it would be settled before it broke. But the public utility men were not banking on possibilities. They got busy. As the result, all but a fraction of the utilities which serve the people laid in ample coal supplies. The results of this wise policy are seen on every hand. Trains are running, there is light, heat, power and gas for all ordinary purposes, and most of the factories of the country are not without fuel.

Largest Gas Main in World Is Laid

(*Continued from page* 186.)

along the route of the main and a profile map made showing obstructions. The proposed line was laid out on this profile map and the grade established. Test holes were dug at each street intersection so that an accurate knowledge of the obstructions would be available and on record.

Contract Work Big Item

The general contract for the construction of this main was let to Nash Bros., Chicago. The contractor digs the trench, braces same, places pipe in the ditch, maintains the trench while pipe is being calked, backfills after pipe is tested, and returns street to its original condition. The gas company calks and tests the pipe. The contract for hauling and placing the pipe along the proposed route was let separately to the W. J. Newman Company, Chicago.

Accordingly the contractor moved his equipment May 10 to Seventy-first Street and Hamlin Avenue, and the work was started digging the trench May 15.

Digging the Trench

Because the south end of the job was on the highest elevation and the territory at the north end near the Drainage Canal was open country, having a gumbo soil, very soggy in the spring of the year, it was decided to start at the south end.

Nash Bros. sublet the excavating of the trench to W. C. Thorne, Oshkosh, Wis., who moved in the largest and most improved Austin excavator that had been built in the United States.

This excavator digs the trench, which averages 7 by 7 ft., with ease. A record of 408 ft. dug and pipe laid has been made, and since the actual work started an average of 204 ft. per day has been made up to Aug. 1. Figuring the expansion of the dirt from the trench, the excavation is running 2 cu. yd. per lineal foot.

An interesting feature which can readily be seen in the photograph is the method of digging the sides of the bell-holes as the excavator is working. Due to the digging being done on an incline, bell-holes were measured aheaad and men with bars and shovels placed on each side to cut out the bell-holes. The dirt is thrown down on the buckets and carried out of the ditch, proving a great labor saver.

Bracing the Ditch

The pipe is placed in as soon as the ditch is dug, the excavator keeping a few lengths ahead of the pipe laying. The soil is a clay gumbo and in dry weather stands up remarkably well.

A stretch of dry weather, forty-three days without rain, since the job began enabled the work to be carried on very rapidly, and to date only single pipe braces have been necessary at each pipe.

The picture shows these bracing conditions.

Placing Pipe in Ditch

For handling the pipe the contractor installed a 10-ton gasoline crane mounted on caterpillar traction. In order to lower the pipe slowly in the ditch and to assist in lining it straight, the single line on the hoist drum was reduced by means of a double set of blocks so that 1 ft. on the drum was reduced to a 2½-in. drop at the pipe.

The traction crane follows closely behind the excavator and it takes six minutes to lift the 48-in. pipe from the bank, place it in the trench and drive it home.

Laying the Pipe to Grade

Extreme care is taken with the laying of the pipe. Each pipe weighs approximately 4 tons and it was decided that the trench should be dug to grade, the blocking laid so that the top of the 4-in. blocking would be on grade, which would make the whole pipe, with the exception of the bell-hole, rest on the original, undisturbed bottom of the trench.

Air Compressors Aiding Calkers on Big Job

Thirty-Inch Water Main Is Lowered to Allow Big 48-In. Gas Main to Pass Through

Constant engineering supervision carries out this plan. Levels are taken on the ditch as the excavator is working, on the blocking before the pipe is laid, and on the pipe line after laying, for a permanent record.

Digging Bell Holes and Calking

Our company maintains its machinery for calking and does this work with its own forces.

Immediately the pipe is placed in the trench the bell-holes are dug in preparation for the calkers. At no time during the progress of the work so far have the calkers been more than twenty-five joints behind the last pipe laid.

The joints are 5 in. deep and are calked with 3-in. wool yard and 2-in. lead wool. Calking is done by pneumatic hammers and two men work to each joint. It requires approximately 8 lb. of wool yarn and 126 lb. of lead wool per joint. Two men average two joints per day. So far 127,500 lb. of lead wool and 8,160 lb. of yarn have been used on this job.

Compressed air is supplied by three Ingersoll-Rand portable compressors capable of supplying a maximum of 210 cu. ft. per minute each at 100 lb. pressure. A header line runs along the trench and two compressors work on the line. At times as high as fourteen sets of calkers, twenty-six hammers, have worked from this header line.

A unique arrangement of the compressors and header line makes a very efficient layout. The header line is run two city blocks, about 600 ft., ahead of where the calkers are working, and by aid of the extra compressor two compressors are always on the line when one is being moved ahead.

This means that the calkers are never held up waiting for air while the header line is being moved ahead or the compressors being moved into a new position.

Pumping Surface Water

As precautionary measures against drainage surface water it was decided to have on the job three Schramm pumps having a capacity of 50 gal. per minute each. A header line was laid along the top of the trench and 12-ft. lengths of hose connected by unions to this header line and lowered into each bell-hole where there was water.

This method proved very satisfactory where water was encountered.

Testing Big Four-Ton Pipe

The progress of the work is so arranged that the digging and laying of the pipe ends Saturday noon. All uncompleted joints are finished up Saturday afternoon, and Sunday if necessary.

The 48-in. plug is put in the last pipe by means of the traction crane. When the last joint has been calked, the three compressors are hooked up to the line, and it has been found possible to secure 15 lb. pressure in the line inside of eight hours.

The tests have been made cumulative up to the present time, testing each week's work in addition to the work that has been finished previously. Up to the present time a length of pipe from Seventy-first Street to Fifty-second Street on Hamlin Avenue, a distance of 12,500 ft., has been successfully tested.

Backfilling with a Fire Hose

The contractor is backfilling with an Austin backfiller and puddling the dirt by means of a fire-hose connection to fire plugs at street intersections.

Excess dirt, which runs to nearly ¾ cu. yd. per lineal foot of ditch, is being loaded by a clamshell crane on traction wheels into auto dumps and hauled away from the job, to be wasted.

Underground Work

The route of the 48-in. main passes through some of the main water lines of the city of Chicago. At Sixty-fifth Street it was necessary to lower the 30-in. water main supplying the large Clearing manufacturing district. This main had to be cut out and lowered 8 ft.

The picture shows an instance of some of the obstructions encountered in the path of the 48-in. gas main.

Progress and Completion

The average of 186 ft. per day since the work started is a record for the laying of 48-in. main, whether it is gas main or water main.

The company is determined to have this main completed before the working season of 1922 ends. If the present rate of progress is maintained, the whole line should be laid and gas turned in same by Nov. 1.

The laying of this 48-in. gas main is being done under the direction of John H. Eustace, chief operating engineer. W. G. Rudd, assistant operating engineer, is in charge of the engineering details. Actual supervision and construction is carried on by the Department of Streets, C. L. Day, general superintendent, through John Ginley, assistant general superintendent, and F. S. Carnes, superintendent south division.—*Peoples Gas Club News.*

Attitude of Utilities Toward Their Patrons

In a speech opening the recent convention of the Ohio Electric Light Association, W. A. Wolls, of the Columbus Railway, Power & Light Company, emphasized the need for public utility companies gaining and keeping the good-will of their patrons, who comprise practically every family in the State. Mr. Wolls said:

"The success of the public utility business becomes more and more a matter of public relations. Public relations has for its foundation, service; and its cornerstone is courtesy.

"From time to time the subject of public relations is used for addresses and for magazine articles. Fundamentally, public relations are built upon courtesy to the public. It is the duty of all public utility executives to see that the best of relations with the public prevail throughout their organizations.

"The public utility business differs in many respects from any other. It requires investment of large amounts of capital; is subject to the whims of legislators and the caprice of the people. Modern civilization is making constantly growing demands upon our productiveness and we are being brought daily into closer contact with the public. To meet this increasing demand, brought about both by the abandonment of private plants and the advance in the industrial status of the country, public utilities have been required to construct huge power stations and to adopt systems of interconnection through hundreds of miles of transmission lines to facilitate the production and distribution of vast quantities of power to serve their customers.

"The fact that practically the whole people of the country are dependent in one way or another upon the service of such industries should make them directly interested in the welfare of all public utilities. Reasonable and, in fact, adequate returns on the utility investment must be made actualities, otherwise demands upon them will eventually overtake their ability to fulfill and the

entire mechanism of their internal organization will suffer.

"This year has brought its share of apprehension and trouble into the business world and to the public utilities. The strike of the coal miners has been in effect since April 1, and at this time there seems to be no tangible evidence looking toward settlement, which, without doubt, will soon have its effect upon the price of coal, the most essential requirement in the production of electric energy.

"It seems at the time that the present problem is greater than all that went before, and some appear greater than any other that could arise in the future; yet, with it all, the utility business, that of serving all the people, must go on in a healthy and prosperous way and must always be equipped and prepared to supply the maximum requirements and demands, and must receive consideration and financial support to accomplish this task.

"The Public Utilities Commission of Ohio, in compliance with the Chappelear law, issued administration order No. 65 this year, setting forth rules and regulations for line construction by all utilities within the State of Ohio. By universal adoption and compliance therewith, there is certain to follow a better and safer standard of construction of lines for all transmission and distribution purposes."

Developments in Gas Technology

Important Information Gathered from All Parts of the World

By ISMAR GINSBERG, B.Sc., Chem. Eng., Associate Editor

Gas Generator

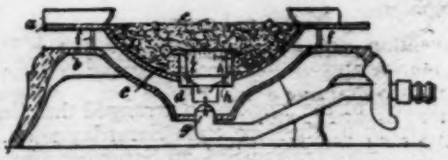
The apparatus consists of a retort mounted vertically above a generator and a supply hopper above the retort with no intervening valves. The generator is connected at the bottom to the bottom of an adjacent regenerator filled with checker brickwork, and at the top to the top of a similar regenerator on the opposite side. One regenerator is provided with a steam inlet and secondary air inlet, and the other with a secondary air inlet only, while both are provided with blast pipes and outlet valves. The generator is ignited and the apparatus is filled with coke to the top of the retort. The hopper is filled with coal and is closed. An air blast is forced downward through one regenerator, upward through the generator and downward through the other regenerator. Toward the end of the blow period, secondary air is admitted to the regenerator through which the waste gases are passing, to burn the carbon monoxide. When the temperature is sufficiently high in this regenerator, the direction of the blast through the apparatus is reversed. When the fuel in the generator is at a high temperature, the blast is cut off and steam is passed through one of the regenerators into the bottom of the generator. The resulting water gas passes upward through the retort, distilling off the volatile products which pass to the purifying plant. Liquid fuel may be admitted at the top. This apparatus is very efficient thermally, as there are no losses due to external heating and to the sensible heat of the producer gas formed in supplying heat to the retort setting. The apparatus is patented in British Patent No. 179,643.

Determination of CO and CO_2 in Generator Gas

To determine the carbon monoxide and carbon dioxide contents of producer gas in a continuous process, it is recommended that two separate instruments be used from the standpoint of operating safety. One instrument is the ordinary carbon dioxide testing apparatus which is provided with a filter, which filters the gas before it enters the apparatus. The second apparatus is of similar nature and is provided with an electric combustion furnace for burning the carbon monoxide. This apparatus will give thirty carbon monoxide determinations in the hour. (See "Waerme und Kaelte Technik," Vol. 23, pp. 229 and 230.)

Air Preheater in Gas Heater

The incandescent mass and the head of the burner are arranged in a saucer *c*, as is seen in the accompanying diagram. The air passes through *f*, coming in con-



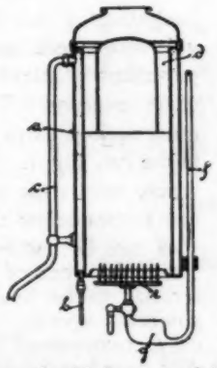
tact with the hot walls of the apparatus. In this way it is preheated before it is used in the combustion of the gas. (See Norwegian Patent No. 32,295.)

Liquid Heater with Gas Regulator

The figure shows a liquid heater operated with gas, consisting of an internal combustion chamber which produces the required draft. In the gas tube, which conducts the gas to the burner, there is inserted an apparatus *g*, which acts as a regulator of the flow of the gas. This serves to maintain constantly the outflowing gas mixture in the burner, as well as changes in the pressure of the gas. (See Norwegian Patent No. 32,565.)

Gas Producers for Low-Grade Fuel

The apparatus is arranged vertically and in such a manner that outlet of the vertical producer is a short distance above the grate bars. Consequently, a free



[*See abstract on liquid heater with gas regulator on preceding page.*]

cone of fuel is formed between the outlet and the grate. The generator is surrounded by an annular boiler, and steam is delivered to an annular channel which surrounds the outlet of the generator and also to the enclosed space below the grate bars. A mixture of steam and air is thus supplied adjacent to the free conical surface of the fuel and is drawn into the generator, and air is also drawn in with the stream and supplied below the grate bars. (See British Patent No. 179,716.)

Continuous Tar Distillation and Cracking Process

This process has been tried out at the Glasgow Corporation Chemical Works in Scotland. The process successfully treated a large amount of tar, giving an average residue of only 27 per cent of pitch when normally 44 per cent would be expected. The process distills the tar continuously, subjecting it likewise to a cracking treatment. The plant has a capacity of 50 tons per twenty-four hours.

Mixing Gases

The invention, which is the subject of British Patent No. 179,346, relates to the enrichment or reducing of gas. A main containing a low-grade gas (or even air to be enriched) is fitted with one or more nozzle connections, containing the gas for enrichment, turned in the direction of the flow of such low-grade gas and acting to some extent as injectors. The injectors are fixed centrally in the gas main, and may be used singly or in numbers. The action of these devices may be described as employing the principles of the Bunsen burner to gas mixing, but with this difference: that the injector may be fixed with the stream of gas in the main or against it. The main pipe may contain rich gas or the injectors may be connected to less rich gas. They may also be supplied with air. In this manner any mixture of gases may be made and the calorific value of the mixture kept constant.

At the point where the high or low grade gas is to be introduced, the main is enlarged so that a short length of pipe of the same diameter as the main, and containing the mixing arrangement, can be inserted. The pipe is provided with a balanced flap valve at the outlet end, and small tubes and injectors are placed in the inlet end. The spindle carrying the valve passes through stuffing boxes and has a balance weight attached to it at a convenient point. This valve regulates the flow of the mixture, and in this way its quality.

Lubricants from Tar

The Verkaufsvereinigung fuer Teererzeugnisse G. m. b. H. has patented a process for making a lubricant from coal tar. (See German Patent No. 330,970.) The process consists in treating the tar oil at an elevated temperature with sulphur and whenever necessary with air as well. In order to obtain thick oils, anthracene residues, from which the anthracene has been crystallized out, are treated with sulphur and the mass formed is mixed together thoroughly.

Coal Survey in Gas Industry

The fuel stocks in the hands of the gas utilities of the country are generally good, though the situation is tending to become somewhat serious in Michigan and the Northwestern States, according to reports made to the American Gas Association.

Michigan companies declare that coal stocks are being depleted rapidly and that shipments of coal have been stalled in some cases for thirty days or more. Companies operating in Minnesota, Wisconsin and the Dakotas who have been depending upon coal stored at Duluth for their supplies report an actual famine and are asking for assistance. Fuel Administrator Spencer immediately answered their call by issuing a Class 1 priority order which will send at least 250,000 tons of coal a week to the Northwest. This should save the situation temporarily for the utilities operating there. Advices from Wisconsin state there is no anthracite in cities outside Milwaukee, and upstate fuel dealers are rushing supplies of wood into their yards.

In the New England States large stocks have been laid in and companies are importing considerable quantities from England. One company will receive a shipment of 15,000 tons in three weeks.

Coke is being substituted for anthracite by companies in the Middle Atlantic States, while in the Southern States no very critical shortage of utility company fuel has yet been reported. However, a great many companies have been obliged to withdraw coke from the domestic market and use it for making gas.

Companies in Ohio, Indiana and Illinois are securing coal from Kentucky and West Virginia, but considerable rail congestion is being encountered. In the Rocky Mountain and Pacific Coast States, where companies have natural gas and oil, no serious trouble is expected. In Iowa, Kansas, Nebraska and Missouri, however, there is a great diversity of conditions. Some coal is being shipped to these States from Kentucky, Alabama and Colorado.

The gas utilities need nearly 200,000 tons a week of steam, gas and anthracite coal. Companies accustomed to using anthracite in their water-gas generators have been advised to substitute coke. To date none of the 966 manufactured gas companies of the country has reported to the American Gas Association that it has been forced to shut down because of coal difficulties.

Gas Company Sues City

The New York Consolidated Gas Company has started suit against the city in the Supreme Court to recover property said to have been seized by it on Aug. 1, 1913. The land extends from the north side of West Forty-fourth Street to the south side of West Forty-sixth Street, and along Eleventh Avenue. The gas company also asks for damages for excavating carried on there by the city.

Supplying New Streets with Gas

By William C. Sykes

In the "Gas and Electric News," Rochester Gas & Electric Corp.

One of the important functions of the gas distribution department is to extend gas mains to keep pace with the ever-spreading population. When new streets and tracts are opened up, blue prints of them are obtained from the city planning engineer. From these prints the number of feet and the sizes of main necessary to supply gas to the sections being opened are computed. This computation, simple enough in itself, is complicated, especially in outlying sections, by the important consideration of how much of the territory lying beyand the section under consideration will eventually have to be supplied. This problem is intricate in cases where there is but one feasible source of supply which is through the section at hand, and the territory beyond is a potential residential district which is not building up very rapidly. The solution calls for a proper balance between the heavy interest charges of present lines large enough for all possible expansion and the cost of renewing in the future mains which have been laid without allowing for much expansion.

It is of great advantage when laying main outside the curb on a street to do the work before the pavement has been laid. Breaking through the concrete foundation and then tamping the dirt very thoroughly when backfilling so that there will never be any subsequent settlement after the pavement is relaid is a considerable extra expense. The cause of another serious extra expense is shown in the cut, Fig. 1. This is a situation where solid rock was struck only a few inches below the surface. Soft rock can be cut out with pick and shovel, but rock of this solid character has to be broken up by more powerful agents. "Jack hammers" using compressed air at about seventy pounds per square inch are used to drill dynamite holes deep in the rock. The explosion of the charge shatters the rock, breaking it up sufficiently so that by using a sledge it can be removed.

Another serious obstacle is encountered in low districts where the surface water drains into the trench. This has to be overcome by building small dams along the trench, thereby breaking it up into sections which can be pumped one at a time as each length is laid. The wet soil, especially in sandy districts, causes trouble by cave-ins, so that the ditch often has to be cleaned out several times.

Thus it will be seen that the work of a gas distribution department in keeping up with the increasing demands of a growing city, begins with the planning of new streets, and is not without its share of obstacles, a few of which have been shown herewith.

Fig. 2—Portable Gasoline Operated Air Compressor Used by the Gas Distribution Department to Supply Power for Operating "Jack Hammers"

Fig. 1—Compressed Air Operated "Jack Hammers" Being Used in Browncroft Section to Drill Dynamite Holes in Solid Rock Preparatory to Laying Gas Mains

Public Utilities Securities Market Report

Prices of Representative Gas Bonds

(Quotations furnished by The National City Company)

Company	Issue	Maturity	Aug. 24, 1922 Bid	Asked
American Lt. & Trac. Co.	Five Year 6s	May 1, 1925	106½	107½
Brooklyn Union Gas Co.	First Consol. 5s	May 1, 1945	98½	99
Columbia Gas & Elec. Co.	First 5s	May 1, 1927	96	96½
Consol. Gas, Elec. Lt. & Pr. Co. of Baltimore	First Ref. 7½s	Dec. 1, 1945	110	111
Consol. Gas, Elec. Lt. & Pr. Co.	General 4½s	Feb. 14, 1935	91½	92½
Consol. Gas Co. of New York	Sec. Conv. 7s	Feb. 1, 1925	102	—
New Amsterdam Gas Co.	First Consol. 5s	Jan. 1, 1948	85	86
Denver Gas & Elec. Co.	Gen. (now 1st) 5s	May 1, 1949	93	—
Detroit City Gas Co.	Gold 5s	Jan. 1, 1923	100	—
Equitable Illum. Gas Lt. Co. of Philadelphia	First 5s	Jan. 1, 1928	99	100
Hudson County Gas Co.	First 5s	Nov. 1, 1949	91	93
Laclede Gas Light Co.	Ref. & Ext. 5s	Apr. 1, 1934	91½	92½
Louisville Gas & Elec. Co.	First & Ref. 7s	June 1, 1923	100¼	101¼
Michigan Light Co.	First & Ref. 5s	Mar. 1, 1946	89	91
Milwaukee Gas Light Co.	First 4s	May 1, 1927	92½	93
Pacific Gas & Elec. Co.	Gen & Ref. 5s	Jan. 1, 1942	93½	94
Pacific Gas & Elec. Co.	First & Ref. 7s	Dec. 1, 1940	107	108½
Cal. Gas & Elec. Corp.	Unif. & Ref. 5s	Nov. 1, 1937	96	96½
Peoples' Gas Lt. & Coke Co.	Refunding 5s	Sept. 1, 1947	95	96
Chicago Gas Lt. & Coke Co.	First 5s	July 1, 1937	96	97
Portland Gas & Coke Co.	First & Ref. 5s	Jan. 1, 1940	90	92
Seattle Lighting Co.	Refunding 5s	Oct. 1, 1949	82	84
Southern California Gas Co.	First 6s	Nov. 1, 1950	98	—
Utica Gas & Electric Co.	Ref. & Ext. 5s	July 1, 1957	90¾	—
Washington Gas Light Co.	General 5s	Nov. 1, 1960	94	95
Western States Gas & Elec. Co. of California	First & Ref. 5s	June 1, 1941	91	92

Will Issue Mortgage Bonds

San Francisco, Cal.—The Los Angeles Gas & Electric Corporation has been authorized by the Railroad Commission to issue and sell at not less than 92.25 per cent of their face value $5,000,000 of series "E" 5½ per cent twenty-five-year general and refunding mortgage bonds and to use the proceeds to reimburse its treasury and finance new construction.

The bonds are redeemable on June 1, 1932, at a premium of 7½ per cent and on the first day of each year thereafter at a premium computed at the rate of one-half of one per cent of each year of the unexpired term.

The company reported at the hearing that it must expend $10,750,000 during the current year for additions and extensions. Of this amount, applicant announced that it expected to finance $6,743,250 through the sale of bonds and the remainder through the sale of stock and the investment of earnings.

Issues 6 Per Cent Stock

San Francisco, Cal.—The Coast Counties Gas & Electric Company was given permission recently by the California Railroad Commission to issue and sell $250,000 6 per cent stock to be used to reimburse its treasury for capital expenditures and to retire as far as possible before maturity $150,000 6 per cent debentures due Jan. 1, 1924.

Savings Banks Can Buy Bonds

Los Angeles, Cal.—The State Superintendent of Banks has issued a certificate certifying the legality of Los Angeles Gas & Electric Corporation general and refunding mortgage 5½ per cent bonds for the investment of savings banks in this State, according to advices received by Bond, Goodwin & Tucker, local brokers.

Dividends Declared

Los Angeles, Cal. — Regular quarterly dividends of the Midway Gas Company have been declared as follows:

Dividend No. 21—$1.40 per share on preferred stock, to holders of record June 30, 1922, payable July 15, 1922.

Dividend No. 20—Fifty cents per share on common stock, to holders of record June 30, 1922, payable July 15, 1922.

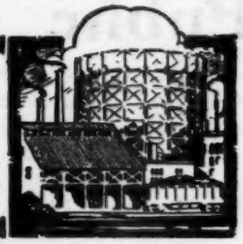
Increase in Columbia Gas Earnings Continues

The Columbia Gas & Electric Company report for the month of July indicates a further increase in earnings. The gross was $1,271,228, an increase of $292,422 over July, 1921, and surplus after all charges amounted to $239,750, a gain of $55,504 over July of last year.

The income account for July and the seven months ended with July 30 compared as follows:

		Increase
July gross	$1,271,228	$292,422
Net	565,768	171,000
Surplus after charges	239,750	55,504
Seven months gross	10,756,412	1,912,978
Net	5,547,701	1,202,018
Surplus after charges	3,255,342	423,415

NEWS OF THE GAS INDUSTRY



Coal Shortage May Force Up Gas Rates

Madison, Wis.—More than 220,000 tons of coal, consigned to the Milwaukee Gas Light Company, which was on its way to Lake Erie ports to be cargoed to Milwaukee, has been diverted east by the Norfolk & Western Railroad on the plea that the coal could not be handled at the Lake Erie docks, because of existing conditions prevailing there. A protest was filed in behalf of the Milwaukee concern with the district committee in the Logan County, Va., non-union coal fields. The coal was said to be the first to move from the fields.

There is no escape from higher gas rates in Milwaukee and Wisconsin, unless the Government "puts a stop to profiteering at the mines," L. E. Gettle, chairman of the State Railroad Commission, has declared.

"The present gas rates in Wisconsin are based on a low price of coal, but if these companies must pay two or three times the normal prices in order to get coal, then there will be no escape from increased gas rates," said Mr. Gettle.

Despite the statement of Mr. Gettle, R. B. Brown, general manager of the Milwaukee Gas Light Company, said his company is not considering asking a higher rate at present. If developments change the situation one will probably be asked, he indicated.

"Our chief concern at present is to get coal," said Mr. Brown. "We couldn't apply to the Railroad Commission for higher rates on grounds that we are forced to pay more for coal when we can't get any coal.

"If the gas companies are compelled to pay more, they will have to get their money back somewhere, however.

"We have little more than a month's supply in sight and this is giving us our greatest worry. If we are hit by the profiteering mines, then the question of a rate increase may be taken up."

A dozen Wisconsin cities have had their gas rates reduced in the past six months by the State Railroad Commission.

Seeks Employee Ownership

San Francisco, Cal.—The California-Oregon Power Company has been authorized by the Railroad Commission to issue and sell at not less than $90 per share $200,000 par value of its 7 per cent cumulative preferred stock.

The proceeds are to be used to supplement the financing of the company's construction program. The company is engaged in building a transmission line to connect its system with that of the Mountain States Power Company and is installing an additional unit in its Copco hydro-electric plant.

The proceeds from the sale of $1,000,000 of bonds, authorized for this work, have proved inadequate, according to the testimony of the president. The company announces that it proposes to offer the stock authorized by the above order to its employees.

Wants to Finance Extension

San Francisco, Cal.—The Pacific Gas & Electric Company has applied to the Railroad Commission for an order authorizing it to issue and sell $5,000,000 of its first preferred stock. It desires to sell this stock at not less than $87.50 a share and deposit the proceeds pending specific authorization for their disbursement. The company declares that the cost of the construction of proposed additions and betterments to its properties and those of the Mount Shasta Power Corporation, which is controlled by the Pacific Company, will amount to more than $10,000,000 during the remainder of the present year and 1923. It states that it is making every effort to complete as early as possible the large power projects on Pitt River.

Court Holds Gas Rates a Matter for Commission

New York, N. Y.—Gas rates are a matter for the Public Service Commission, although the Supreme Court has restraining power in the event that rates are illegally high, was the comment of Supreme Court Justice May when he reserved decision on an application for an injunction to restrain the Richmond Gas Company from charging 75 cents monthly for meter service and $1.25 per month per thousand cubic feet for gas.

The application asked also that the court fix the proper rate which the company might charge.

"The Public Service Commission, in my opinion," Justice May said, "acts in a judicial capacity and should be the sole judge on the matter of rates. The question before me is whether or not the present rate charged by this defendant is illegally high. As I feel about it now, the entire rate question should should be submitted to the Public Service Commission."

Higher Gas Rates Asked

Oklahoma City, Okla. — The Skiatook Service Company, which supplies the town of Skiatook with gas, has asked the Corporation Commission to authorize an increase in its rates, on account of increased costs of procuring gas. The company declared it had the consent of the city council and citizens to the increase, but the commission ruled this permission must be presented in writing, after which the rates would be authorized, as emergency rates only, subject to readjustment upon further investigation by the commission.

The company has 436 consumers. It alleges it was forced to buy gas from the wells of the Kansas Natural Gas Company at a high rate and is paying more for the gas at present than it receives from its consumers.

Gas Company Shuts Off Coke Sales

Winston-Salem, N. C.—Noble Clay, manager of the Winston-Salem Gas Company, recently declared that there will be no coke for sale at the Gas Company's plant until after the coal situation clears up, on account of the fact that it is now impossible for the company to secure coal enough to keep up the gas supply. The company will have to depend entirely upon its water gas plant in the future to supply the city, until the coal market is easier.

Mr. Clay said, however, that there will be no trouble in doing this, for his water equipment is large enough to take care of twice the business that this city affords, and while the making of gas by the water gas process will cost the company considerably more, they must accept this loss in order to keep their customers supplied.

In talking of the coal situation Mr. Clay said that he had on hand at the first of July about five weeks' supply of coal, and since that time he has received only four carloads. The normal requirements for that length of time is about fifteen cars. Therefore the company finds itself now without enough coal and is obliged to shut down the coal plant.

Just now the company has about ninety days' supply of coke on hand, but as it is not known how long the coal situation will continue serious, and the company has to depend entirely for making gas in the water gas plant, the management does not feel that it can part with any of this supply.

Mr. Clay, as president of the North Carolina Gas Association, has been requested by the coal committee to co-operate with them in every way possible, and with that end in view he has made up a questionnaire to send to all public utilities companies in the State, to find out their needs for the coming months, that the coal committee may make an equal distribution to the public utility companies. These companies are next to the railroads in the priority list, when it comes to receiving coal.

Mr. Clay declared that since June he has been getting his coal from a non-union mine that has been running every day, but they were busy filling cars placed with them by the railroads, and just cannot meet the demand.

In talking about the coal situation in general, Mr. Clay said that he had made an exhaustive study of conditions, and he declared that if all mines in the country should start to work at once, there would still be a great shortage this winter, on account of the fact that there was no reserve supply on hand. He believes that conditions will become serious before the winter is over, owing to the fact that a large number of manufacturing plants will have to close down on account of the shortage of fuel.

Must Replace Paving

Hagerstown, Md.—At a special meeting of the mayor and council, it was decided to notify the Hagerstown Light & Heat Company that unless streets dug up by them were immediately placed back in same condition in which they were before being torn up that the company would be prosecuted. The action was at the instance of Councilman Musey, who cited two specific instances in which he said that the company had failed to comply with the provisions of its permit to dig up streets of the city. The gas company has a contract with the board of street commissioners whereby that body is required to repair all streets left open by the company.

Gas Lines Extended by St. Petersburg

St. Petersburg, Fla.—Work of laying high-pressure gas mains on West Central Avenue from Twenty-eighth Street to Pasadena, as provided in an agreement between the Pasadena Estates Corporation and the city of St. Petersburg is expected to begin shortly. This will supply gas to a new section of the city. The corporation has guaranteed an advance of $18,000 to the city so that the work can be completed without drawing on the city funds. The money is to be refunded to the development company when the number of consumers served yields a revenue to the city of $5,000 a year.

Financial Statement

The Boston Consolidated Gas Company, a subsidiary of the Massachusetts Gas Companies, reports gross revenues of $5,542,463 for the six months ended June 30, 1922, with a surplus for the period after preferred and common dividends of $327,383.

Unusual Gas Demand Is in Prospect in Baltimore

Baltimore, Md.—With August nearly half gone and the coal and railroad strikes continuing, the prospect for the winter is that the Consolidated Gas, Electric Light & Power Company will be called upon to a greater extent than usual for gas for heating, as well as cooking. The company is enlarging its generating capacity in the ordinary course of its business, which calls for expansion every year, and will be able to manufacture 50,000,000 cu. ft. per day as soon as improvements now under way are completed.

There is no way of estimating the call arising from the shortage of coal, but the outlook is for a heavy winter demand.

The supply of coke-oven gas from Sparrows Point has been decreasing recently because of the inability of the Bethlehem Steel Company to get a full supply of coal, but, it is said by officers of the gas company, the Consolidated can generate gas enough to supply its consumers without any from Sparrows Point.

Recently the company has been using coke from Sparrows Point in its gas generators and husbanding its supply of anthracite coal. It has about 25,000 tons in storage—enough to last two months under ordinary autumn conditions—and this it has been saving by using coke.

At this time last year the company was getting about 50 per cent of the electric power it needed from the McCalls Ferry dam of the Pennsylvania Water & Power Company, but the Susquehanna River is low, and now the Consolidated is receiving only about 20 per cent of its requirements, which increases its demands for steam coal for the Westport plant. It is estimated that the non-union mines can supply the demands of the Eastern States for soft coal, but the railroad strike has, it is said, cut down the number of engines available for coal trains, with its consequent effect upon coal supply. Until the railroad strike and the advent of the coal distribution committees, the company was getting all the fuel it needed, but now its supply of steam coal is a problem. The company was, however, during the war, face to face with worse situations as regards coal supply.

Financial Statements

The Skelley Oil Company shows net earnings of $1,100,589 for six months ending June 30, 1922, after expenses, depreciation, depletion and Federal tax. Profit and loss surplus is $1,200,305.

The Pennock Oil Company for six months ending June 30, 1922, shows net earnings of $310,021 before depreciation, etc. Net current assets totaled $747,907, liabilities $45,240.

The Ohio Oil Company declared an extra dividend of 75 cents a share in addition to the regular disbursement of $1.75, the quarterly dividend payable Sept. 20 to holders of record Aug. 26.

The E. T. Williams Oil Company declares the regular quarterly dividend of 1½ cents a share, payable on Sept. 1 to stockholders of record Aug. 20.

The Proctor Oil Company, of Wichita Falls, Texas, mailed their regular 2 per cent monthly dividend on Aug. 15, thereby completing a total of 70 per cent paid thus far. Going some!

Columbia Petroleum, a subsidiary of Southern States Oil Company has declared the regular 1 per cent monthly dividend payable Sept. 1 to stock of record Aug. 20.

The California Petroleum Company for the first six months of 1922 shows a surplus of $1,307,490 after charges and Federal taxes. This is equal to $6.41 a share on the common stock, after taking care of the dividends on the preferred. The surplus last year was $1,520,685 or $7.79 a share on the common, of which $14,877,000 is outstanding.

Gas Plant Gets Coal Under Hoover Order

Washington, Ind.—The local gas plant is pulling through the coal shortage in good shape. A fair supply is now on hand and ten more cars have been promised.

Six cars have been promised under the Hoover priority orders and the car numbers on two of these cars have been received, indicating they are on the way. A Tennessee coal company has accepted orders for four more cars of gas coal.

Charcoal Gasoline Recovery Patent Granted

A patent covering an apparatus for the recovery of gasoline vapors from casinghead gas has been granted to the Gasoline Recovery Corporation.

The apparatus consists of drums filled with activated charcoal and connected on one side to a steam boiler and on the other to gasoline condensers. In operation the gasoline-heading gas is allowed to flow through one of the drums of charcoal, which, being extremely porous, absorbs and retains the gasoline, allowing the rest of the gas to pass through unchanged. Steam at low pressure is later used to drive the gasoline from the charcoal.

Cities Service Back on Cash Basis

In compliance with the plan announced in June, the directors of Cities Service Company have placed the preference "B" stock back on a cash dividend basis. The board of directors, which met recently, declared the regular one-half of one per cent monthly dividend payable in cash Oct. 1 to stockholders of record Sept. 15. At the same time one-half of one per cent in cash was declared on the preferred stock, and the regular dividends of one-half of one per cent on the common stock payable in scrip and 1¼ per cent payable in stock scrip were declared as of the same date.

The earnings statement of Cities Service Company for the twelve months ending July 31, 1922, showed continued improvement in net earnings. Net to common stock for the period was $6,340,786, which was the equivalent of $13.63 a share earned on the average amount of common stock outstanding which compared with $5,979,003 and $12.86 a share on the average amount of common stock outstanding in the twelve months ending June, 1922. Gross earnings for the twelve-months period ending last month were $13,844,852, which compared with $13,482,661 in the period ending with June. There was also a decrease in expenses as compared with the preceding period. In the month of July gross earnings were $1,060,862 as compared with $698,672 in July of 1921. Net to common stock and reserves in the month of July, 1922, was $422,488, which compared with $60,706 in July, 1921.

Net earnings of the public utility division for July have been especially good in view of the coal situation, and also the fact that earnings from the lighting end of the business are usually at their lowest point at this season.

Net earnings showed a slight decrease from June, but an increase over the estimated net. Adequate supplies of coal have been kept available so that in no case has service been jeopardized in the least due to lack of fuel. This has been due to the policy established at the beginning of the coal strike, of carrying sufficient fuel in storage to take care of the requirements for a considerable period ahead. The increase in price of coal has to some extent increased operating expenses.

Fuel oil is being used in a number of their properties and in those plants which are equipped to burn either coal or oil, advantage has been taken of the opportunity to use fuel oil rather than coal.

Oil Division Activities

The oil-producing subsidiaries of Cities Service Company completed eleven wells during the month of July, with a combined initial production of approximately 1,400 bbl.

During the past year the company has not increased stocks of crude oil and storage space is now available so that it may be possible to take advantage of the present low prices being paid for crude.

While production in the United States is at a high point, the large increase is due to a large degree to flush production which is susceptible to rapid decline in drilling activities are curtailed.

Robbers Pose as Gas Company Men

New York, N. Y.—A general alarm has been sent out from police headquarters ordering the arrest of two men who have robbed apartments in upper Manhattan of silverware, jewelry, linen and other valuable to the extent of more than $50,000.

Their method of operation is daring. Posing as gas meter inspectors and displaying badges, they gain easy access to buildings, and finding apartments unoccupied for the day, rob them leisurely.

Eliminate Waste to Meet Fuel Crisis

The following statement was given out by the New York State Committee on Public Utility Information for use in the newspapers:

Conservation of coal-made gas and electricity in every household will be necessary for months to come, no matter when regular production of coal is resumed. C. H. B. Chapin, secretary of the Empire State Gas & Electric Association, declared that he believes there will be no stoppage of light, heat or transportation service in any community, but that service can be maintained only by the elimination of all waste and non-essential use.

"There will be for many months a necessity for the most careful and economical use of gas and electricity produced by coal and of water pumped by coal," said Mr. Chapin. "Up to date there has been no suspension of operation of any utility company in this State, and the system of passing on coal applications and priorities is now perfected so that I think no citizen of the Empire State need go without gas or electricity or walk to work.

"Conservation, however, is imperative. Every possible pound of coal should be saved. This means that gas and electricity generated by coal should be used only when absolutely necessary. Conservation in the household is something which the utilities cannot enforce —they can only urge it on their customers. What economies the companies can put into effect in their own practice they have adopted.

"Though New York State has no coal resources, it has, fortunately, a great supply of 'white coal'—water power; and this is of the utmost value in this emergency. Electric companies which would have had to curtail their service because of coal shortage have been able to meet the demands on them by obtaining power from hydro-electric companies. The unusually heavy rains this spring and summer have kept the reservoirs full and a maximum production of water-generated electricity has been made possible. If it were not for that, many industrial concerns would have been forced to shut down before now.

"The utilities companies are contracting for coal wherever they can find it. They are doing their utmost to keep up their service. But they need the co-operation of their customers in the interest of the public. Here are specific ways in which the public can help:

"Don't use open-flame gas lights. Mantle burners give more light for the same amount of gas used, so save gas and cost less. Turn off gas burners when not actually needed. Much gas can be saved in operation of ranges and water heaters. After water boils, turn down the gas—the water can't be made hotter by a full flame. Don't light oven burners before you are ready for the oven, and don't burn them a moment longer than is necessary. Don't have burner flames so high they lick around the sides of cooking utensils. Be sure the gas burns with a blue flame, and that burners and devices are clean and properly adjusted."

City Lighting Bids Made at Old Prices

St. Louis, Mo.—The Laclede Gas Company and the Union Electric Light & Power Company has submitted bids to the city for furnishing gas and electricity for street lighting at the same prices as under the old contracts which expire Sept. 1. The estimates on the amount of gas and power used place the total expenditure for street lighting at $600,832.

The amount is exclusive of the cost of maintenance of the gas lights, which has heretofore been bid on by the Welsbach Street Lighting Company. Owing to a technicality the maintaining company did not bid. The maintenance, which last year cost the city $380,000, will be readvertised for the middle of September, when the Welsbach Company is expected to present figures for a renewal of its contract. In the meanwhile the city will extend its contract with the firm until new bids are received.

The prices as quoted by the two companies were as follows:

Gas, 85 cents per thousand cubic feet; estimated consumption, 375,000,000; arc and incandescent lamps, $98 each; 60-watt alley lamps, $36 each per year. Park lamps on 2,300-volt circuits and the special multiple circuits used on viaducts are offered on the kilowatt basis, the total for current being $28,750.

Earnings of Bridgeport Company Improve

Bridgeport, Conn.—The Bridgeport Gas Light Company, after all charges and dividends payments, earned a surplus from its operation during 1921 amounting to $8,067, according to the annual report for the fiscal year of 1921. Surplus after dividends earned in 1921 is comparable with a deficit after dividends in 1920, amounting to $32,441.

The balance sheet of the company for 1921 shows a net income after all operating charges and fixed charges amounting to $213,067, equivalent to 7.8 per cent earned per share on outstanding capital stock of the company. This is comparable with balance after all charges in 1920 amounting to $147,559, or the equivalent to the earnings at the rate of 5.8 per cent per share.

Gross earnings in 1921 showed a slight increase over 1920 gross of about $35,000. Gross for 1921 amounted to $1,545,373 as against $1,510,879 reported in 1920. Operating expenses last year were reduced from $1,275,100 reported for 1920, to $1,255,832 in 1921. Net operating income after deduction of operating costs, taxes, etc., for 1921 was $289,541 as compared to $235,779 reported for 1920.

Capital stock outstanding was increased in 1921 over 1920 totals by $250,000. The profit and loss account was increased from 1920 totals of $381,196 to $389,263 in 1921.

Oil Conservation Manual in Preparation

At the direction of Secretary Fall of the Interior Department, T. E. Swigart, petroleum technologist, and C. E. Beecher, oil recovery engineer, of the Bureau of Mines, have been designated to compile a handbook of conservation methods in petroleum production, to be used by operators on leased public lands. The manual will include discussions of sources of wastes in oil and gas fields; suggested methods of preventing wastes in the production of oil and gas; and a complete revised set of rules, regulations and penalties for violation of regulations as applied to oil and gas production on public lands of the United States.

Announces Second Rate Reduction

On Aug. 2 the Portland Gas & Coke Company reduced its gas rate 5 cents per thousand cubic feet all along the line and did away with the service charge of $1 for connecting meters. This news, so welcome to the public, was followed on Aug. 8 by the announcement by Guy W. Talbot, president of the company, that another 5-cent cut would go into effect Sept. 1, as oil had again declined. The rates now are as follows:

Schedule A1—Residential and Commercial Gas rates

	Per Thousand
First 300 cu. ft. or less per month for installations served by meters of capacity less than ten-light B	$0.75
Next 9,700 cu. ft. per mo.	1.08
Next 30,000 cu. ft. per mo.	0.95
Next 60,000 cu. ft. per mo.	0.80
Next 100,000 cu. ft. per mo.	0.65
Over 200,000 cu. ft. per mo.	0.55

Schedule A1 applies to sales to other gas utilities.

Schedule A2—House Heating and Gas Engine Gas Rates

	Per Thousand
First 300 cu. ft. or less per month for installations served by meters of capacity less than ten-light B	$0.75
Next 2,700 cu. ft. per mo...	0.75
Over 3,000 cu. ft. per mo...	0.55

The house-heating service, the initial charges as set out above, will apply for each month of the year except the months of July and August. The first 300 cu. ft. used for house heating during each of the months of July and August will be billed at the rate of 75 cents per thousand cubic feet.

Seek Gas Service

Endicott, N. Y.—To report the result of their canvass work in various sections of the village to obtain 2,000 signers to bring gas to this village, the meeting of the Chamber of Commerce committee working on the gas proposition will meet in the Chamber of Commerce rooms shortly.

Reports have been obtained from a large number of streets, some of which show a high percentage of signers. The chamber has forty-five members convassing the village.

The belief prevails that 2,000 signers will not be obtained, although nearly that number are expected to sign petitions being circulated to bring gas to this village from Binghamton. It is said that 2,000 signers are needed to bring the gas to the village from Binghamton. However, it is believed that if 1,500 are obtained or about that number, the Binghamton Gas Company can be prevailed upon to afford this village gas.

According to those familiar with the efforts of the Chamber of Commerce to bring gas to this village, the gas company would sell direct to those who want gas or to a private company if a sufficient number of signers are obtained by the chamber.

Gas Rates in Birmingham Are Reduced

Birmingham, Ala.—Effective on August bills, by-product gas will be 8 cents cheaper in Birmingham, according to notice received this week by D. E. McLendon, president of the city commission, from the Alabama Public Service Commission.

The reduction comes as a result of a contract entered into on Aug. 7, 1920, by the city with the Sloss-Sheffield Coal & Iron Company, which specified that the rate would drop from 93 cents per 10,000 cu. ft. to 85 cents after 1,500,000 cu. ft. had been consumed. That amount has now been used and the new rate accordingly goes into effect.

By terms of the contract now in operation 85 cents will be paid for the first 10,000 cu. ft., 75 cents for the second, 65 cents for the third and 55 cents for all over 30,000. However, it is announced that instead of a 10 per cent discount only a 5 per cent discount will be allowed in the future for prompt payment of bills.

Mobile Gas Rate Cut Is Held Up by Injunction

Montgomery, Ala. — Judge Henry D. Clayton has issued a temporary injunction against the application of reduced rates ordered by the Alabama Public Service Commission July 24, 1922, affecting the Mobile Gas Company, of Mobile. This action followed the filing of a bill by the company in which it is alleged that the rates set forth by the Public Service Commission violate provisions of the Constitution of the United States relative to the taking of property for public use without just compensation and without due process of law.

The case resulting from the presentation of the bill is a "three judges case," as it involves a constitutional question. It must be heard before three Federal judges, one of whom must be a supreme or circuit judge, and two circuit or district judges.

The Public Service Commission has twenty days to answer in the case.

Takes Over Gas Company

Albany, N. Y.—Consent has been given by the Public Service Commission to the New York Mutual Gas Light Company to transfer its plant and system to the Consolidated Gas Company of New York for $9,012,275.

The United States district court, southern district, in the New York Mutual's gas rate case fixed the valuation of the property on Oct. 1, 1919, as $9,660,460, based on an inventory of that date, with unit prices of materials and labor as of Oct. 1, 1914, applied thereto.

The transfer of the title of the property of the Consolidated company will not change the physical facts of use and requirement. The Consolidated company, the Public Service Commission said, will need all of the Mutual company's plant and more to supply its present and prospective customers, and no part of it could be abandoned without the substitution of new mains and replacements. An examination of the company's property showed it to be in first-class condition.

Receiver for Hammonton Gas Company Is Asked

Atlantic City, N. J.—An action has been filed in chancery court here for a rule to show cause why a receiver should not be appointed to preserve the assets of the Hammonton and Egg Harbor City Gas Company for its creditors and stockholders. William J. Jeffers, of New York City, is bringing the action, and he declares the concern has been unable to satisfy a judgment for $3,000 which he obtained against it.

Utilities to Sell Electric and Gas Heaters at Cost

At a special meeting of the board of directors of the Northern New York Utilities held recently, one of the main propositions to be considered was the present coal situation in the Northern New York counties. John N. Carlisle, president of the company, stated that the requirements of the city demanded 60,000 tons and only about 6,000 tons have already been delivered.

Orders have already been placed by the company for 500 gas and 500 electric heaters which will be sold to the public at cost.

The following statement was issued:

Northern New York Utilities, Inc., appreciating conditions that are liable to prevail in its territory during the fall and early winter months, due to the acute coal situation, have ordered a large number of gas and electric heaters. It is the intention of the company to sell these heaters to its patrons at cost, with careful instructions as to their use, so that our patrons' bills will not be excessive.

The company believes that careful use of either a gas or an electric heater for a few hours a day will render service sufficient to keep the homes and dwelling houses, or a part of the rooms comfortable, and that the cost of their operation will be less than it would cost to heat the houses with coal or wood. It is the intention of the company to send out circulars with instructions as to the actual cost of using either one of these types of heaters per hour, the number of hours it is believed will be sufficient to furnish proper heat, and cards will also be printed and delivered with each heater, advising as to their economical use.

Operation of Gas Utilities Is Discussed

Hark, gasmen, there's romance in the gas main, according to A. E. Merchant, superintendent of the New Orleans Gas Light Company. Mr. Merchant, it is plain to see, finds a strange fascination in his business and is ever avid to discuss the intricate twists of his work. He believes in giving Service—with a capital "S"—to the customers of his company, and declares that while the reconstruction and improvement fever is rife among the New Orleans utilities departments, the gas company is keeping pace with or even forging ahead of the others.

"The big thing in the utility business is developing a system that means service to the public," he remarked, with an emphasis. "It is one thing to manufacture gas and quite another to deliver it to the public. The manufacture of gas is purely scientific, but serving the public and delivering it on time to everyone's complete satisfaction is pure romance. Every day is filled with adventure in the gas business.

"Little does the June bride realize, when she lights the gas burner under the morning coffee, the variety and interest of the forces behind the burner. Nor does the average housewife give much thought to her gas stove until she is forced to be without it. It might be interesting for her to know that in the manufacture of gas other necessities are provided for her—such as aniline dyes, fever medicines, coal-tar naphtha, benzol, creosote oil and many other products.

Mr. Merchant discussed the preparations of the New Orleans Gas Light Company to connect 2,000 new services, 800 of which are various extensions of the gas mains on the extreme limits of the city. This move was necessitated by the remarkable development of the city's outskirts and the erection of hundreds of new homes. In most of these homes, Mr. Merchant said, both gas ranges and hot water heaters will be installed and will be in operation by Oct. 1. In speaking of the expenses connected with the work in question, Mr. Merchant remarked:

"It is significant that the gas company is spending more than $100,000 in connection with the new services and approximately $80,000 additional in the laying of a medium high pressure main for the purpose of delivering more gas to the public. It means much in the development of New Orleans that its gas service has improved so rapidly and is continuing to improve with the immediate prospect of a material reduction in rates.

"We are beginning to lay 10,000 ft. of six-inch mains, commonly called extension mains, which will carry gas to the new homes. The bulk of the investment of $100,000 in this operation will be for meters, which range in price from $17.50 to $150, depending upon their size. This is but an initial expense, however, for the great expense in the gas business is in its service."

It might interest gasmen in other parts of the country to learn that one of the greatest difficulties in delivering gas to the homes of New Orleans has its origin in the physical arrangement of the city. The population is so scattered that it requires as many feet of mains as it does of service pipe to provide the housewife with gas for cooking and heating and factories, etc., for industrial purposes. The rule of one foot of main to several feet of service pipe does not hold good there, as it does in other cities in the country.

The actual figures compared with the figures of other cities bear out this statement adequately. For instance, New Orleans, with its population of 390,000, requires 471 miles of gas mains to accommodate a maximum daily sendout of 12,561,000 cu. ft. of gas; Washington, D. C., with a population of 450,428 requires approximately 556 miles of gas mains to deliver 18,624,000 cu. ft. of gas a day; while Atlanta, Ga., with a population of 250,000 requires about 273 miles of mains to send out 6,000,000 cu. ft. of gas on a maximum day.

New Gas Tank for Elmira

F. H. Hill, vice-president of the Elmira Water, Light & Railroad Company, has invited Elmirans to visit the location of the new gas plant and watch the construction work which is now in progress. The company recently issued the following bulletin relative to the progress of the work:

"Rapid progress is being made in the preliminary work in connection with Elmira's new gas plant. The site has been cleared and the excavation for the foundation of the new 1,000,000 cu. ft. gas holder will be begun next week by the manufacturers, the Stacey Brothers Gas Construction Company, of Cincinnati, Ohio. It will take 35 freight cars to ship the holder and 75 days will be required by a large force of men to erect it.

"Foundations for the gas-making machinery have been put in and work on the new generator house is being rushed by Pulford & Dempsey, who have the contract for this part of the work.

The work is being pushed with all possible speed by the Water-Light company, so that the plant may be completed in December."

Capital Increases

The Nebraska Gas & Electric Company has increased its capital from $1,500,000 to $5,000,000.

Gas Company's Plea Is Heard By Commission

Terre Haute, Ind.—Carl Wilde, director of service, and A. B. Cronk, chief of the tariff department of the Public Service Commission, have held hearings on the petition of the Citizens Gas & Fuel Company, asking the commission to fix the rate for laying pipe service and granting the gas company the sole right to make such installations.

The present rate is 50 cents a foot and in the petition the company offered to reduce this price to 40 cents per foot. Charles A. Huston, about a year ago, filed an objection with the Public Service Commission stating that the gas company refused to connect up their mains with the pipes laid by union plumbers and alleging that the price charged by the gas company for such service was excessive.

The price at that time was 60 cents a foot and last March was reduced to 50 cents. Although the members of the Public Service Commission made no decision to-day and will take the matter up with the entire commission, it is believed that the petition will be granted by reason of the fact that the company expressed the willingness to reduce the rates, and Mr. Huston stated that he had no objection to the company men doing the pipe work so long as the price for such work was not excessive.

Daniel Eades, plumber, who laid the pipe for Mr. Huston, was the first witness on the stand at the hearing, stating that he had completed the job, paying plumbers at the rate of $1 an hour, or $24, and presented figures to show that out of this he had made a profit of $11.04 for six hours' work. At that time the price asked by the gas company for the job, according to his statement, was $36.

J. T. Beasley, attorney for the gas company, placed C. D. Shaul, general manager of the company, on the stand, who gave a technical explanation of the work and told of the maintaining of a regular force of men who specialized on pipe work.

He stated that for outside men to lay the pipe from the company's mains caused delay, inconvenience and oftentimes very inefficient work and stated that the desire of the company to do this work was their desire for more efficient work and safer conditions. He stated that the company did not want to control this work for financial gain but to do it at prices subject to the rule of the commission and offered the rate of 40 cents an hour.

Men of High Standing to Carry Forward Work of Natural Gas Association

President Creveling has announced the appointment of the standardization, publicity and electrolysis committees of the Natural Gas Association of America.

The standardization committee will take the place of the former committee which had been co-operating with the Bureau of Standards, and will hold office until after the 1923 convention. Those who have consented to carry on this work are:

H. C. Cooper, chairman, Hope Natural Gas Company, Pittsburgh, Pa.; E. D. Leland, Equitable Gas Company, Pittsburgh, Pa.; T. R. Weymouth, United Natural Gas Company, Oil City, Pa.; Dan C. Hayne, Kansas City Gas Company, Kansas City, Mo.; H. D. Hancock, Empire Companies, Bartlesville, Okla.; F. L. Chase, Lone Star Gas Company, Dallas, Texas; T. H. Kerr, Ohio Fuel Supply Company, Columbus, Ohio.

Publicity Committees for 1922.—Five of the old members of the publicity committee consented to continue to work during 1922. H. J. Hoover has been retained as chairman so that he may carry through the advanced policies he had so successfully begun. The personnel of the new committee is as follows:

H. J. Hoover, chairman, Cincinnati, Ohio; N. C. McGowen, Shreveport, La.; R. W. Gallagher, Cleveland, Ohio; Larmour Adams, Erie, Pa.; George W. Ratcliffe, Pittsburgh, Pa.; George A. Kinley, Hope Natural Gas Company, Pittsburgh, Pa.; B. R. Bay, Empire Companies, Bartlesville, Okla.; Alfred Hurburt, Equitable Gas Company, Pittsburgh, Pa.

Among the other duties of this committee is the supervision of the editorial policy of *Natural Gas*.

Committee on Electrolysis.—The work of the joint committee on electrolysis will be carried on by the same men who have done such splendid work, and the National Gas Association will be represented again by the following members:

F. M. Towl, New York, N. Y.; T. R. Weymouth, Oil City, Pa.; S. S. Wyer, Columbus, Ohio.

New Jersey Gas Association Outing

The New Jersey Gas Association will hold a summer outing Tuesday, Sept. 12, at the Ocean City Yacht Club.

The festivities will be preceded by a short business session, at which time men prominent in the gas industry will lead discussion in round-table conference, on subjects of vital present-day interest to all gasmen.

The program will be as follows:

10 to 11 A. M.—Business session.
11 to 12.30 P. M.—Bathing at Park Place.
1 P. M.—Dinner at yacht club.
2.30 to 4 P. M.—Sailing.
Specially chartered yachts.

In the announcement J. B. Jones, president, and H. E. Mann, secretary, say:

"This is a day set aside for real fun, but you are going to be interested in the business session.

"Come early. The bell rings at 10 a. m.

"Delegates arriving by train will be met by automobiles if they will name road and time of arrival.

"The Yacht Club is a two-minute walk from the Gardens station on the Reading.

"The entertainment features provide that this will be purely a stag party.

"As is customary, all our own members will be the guests of the association on this occasion.

"You are privileged to bring as many guests as you desire and we will be glad to have them. The chairman of the entertainment committee will also be glad to meet you in the forward cabin and collect $2.50 for each of the aforesaid guests. But don't let that stop you.

"If the program as outlined is not enough to make a perfect day, bring your fishing tackle. There are lots of fish in the bay, for nobody down there has caught any this season.

"All this season the Elgawa baseball team (meaning the electric, gas and water companies of S. J. Franklin) have been steady and persistent winners in all games played.

"Following the sailing trip, they will be on the ball field to meet all comers. Any old kind of a team has a chance, for the directors will select a friendly umpire before the riot starts.

"You will get a later notice, but remember the time and place—Ocean City Yacht Club, Sept. 12."